Part One- New Trends of Labor Migration from South Asia -Skilled Labour Migration from India

PART ONE
New Trends of Labor Migration from South Asia

SKILLED LABOUR MIGRATION FROM INDIA

Binod Khadria

I . INTRODUCTION: Changing Paradigms over Half a Century of Skilled Labour Migration from India - From Brain Drain to Brain Bank to Brain Gain

Today, India is almost at the top of the list of countries so far as emigration of the highly skilled category of labour is concerned - to developed countries like the USA, Canada, Australia, Germany, France, Japan, and of course the UK. In the present Indian polity, this is no longer being looked as a brain drain - a worrying cause of concern that it used to be, sometimes more sometimes less, in the last four decades of the twentieth century. Rather, the boom in the information technology (or IT in short) sector in the developed countries is being looked at as an opportunity to reap the benefits of a 'brain bank' that India's brain drain was once compared with (Khadria 1994). This is hardly surprising because the category of "brain drain," despite having very provocative geneses in Indian political history, had not found a place of priority even in policy pronouncements following the Independence[1]. Rather, it was neglected to the extent that concerns about graduate unemployment did become surmount within the Planning Commission but not the brain drain by the mid-1960s (GOI, 2002). In fact, emigration of India's so-called surplus human capital not only changed direction towards the United States of America during this time, but also swelled in terms of numbers. In the early 1990s, the political perception of "brain drain" particularly started giving way to the perception of "brain bank" abroad, a concept dear to the then Prime Minister Rajiv Gandhi. Further, the emigration of Indian IT professionals in the year 2000-01 has been looked at as the complete reversal of the brain "drain", or a welcome fructifying of the "brain bank" into a "brain gain" through globalization of the Indian talent and skills.

Not merely economic, but political mileage that the non-resident Indians (NRIs) and the persons of Indian origin (PIOs) could command for India in their countries of abode has also come to the centre-stage in recent years, particularly with liberalization, globalization and world competitiveness becoming the agenda of the nations - whether developed or developing. Statements in Prime Minister Atal Bihari Vajpayee's not so old address to the Global Organization Of Persons Of Indian Origin (GOPIO) at New Delhi in January 2001, followed by the first *"pravasi bhartiya divas"* (Expatriate Indians Day) celebration on 9th January 2003, and the second one on 9th January 2004 reflect the current perception of the Indian polity towards Indian emigrants settled abroad, particularly the highly placed elite groups amongst them. Expressing the pride of the nation on the legendary success stories of Indian entrepreneurs abroad, he is reported to have said, "From high-tech chip laboratories to curry restaurants, from renowned hospitals to famous educational institutions, from well-known research centres to leading think-tanks - everywhere you find an Indian who has overcome all odds to

---

[1] These were however not at all obvious. See Khadria 2001b, forthcoming volume ed. by Green.

establish himself through skilled education and hard work."[2] He also said, "many of you owe your current success to the quality education which you have received in government-run institutions, be they Indian Institutions of Technology or medical colleges. You now owe it to your motherland to associate yourselves with India's search for rapid and enduring social change and economic progress," and again, "I would like to emphasize that we do not merely seek investments and asset transfer. What we seek is a broader relationship - in fact a partnership among all children of Mother India, so that our country can emerge as a major global player." Finally, he said, "My government's policy is to assist the overseas Indian community in maintaining its cultural identity and strengthening the emotional, cultural and spiritual bonds that bind them to the country of their origin."

II. THE PROFILE OF SKILL EMIGRATION FROM INDIA- Macro Dimensions and Micro Perceptions of Emigration for Employment Abroad

A. The Macro Dimensions:

Table 1 contains the occupational profile of Indian immigrants in the United States. It shows that a substantial majority of Indian immigrants in the United States are engaged in 'professional and technical' occupations. For 'executive, administrative and managerial' occupations too, their percentage share amongst all Indian immigrants remains substantial. The percentage share of these two categories amongst all Indian immigrants has increased over the years, conveying that the position of the highly skilled and knowledgeable has improved in the Indian immigrant workforce in the US labour market. A plausible explanation of this kind of improvement in the share of the highly skilled in the working immigrant community lies in the fact that "education-wise, Indian immigrants in America have been better equipped with 'human capital' to enter the higher echelons of the US job market than other immigrants" (Khadria 1999a, p.97).

TABLE 1. Occupational Profile of Indian Immigrants in the United States, 1986-2001

	1986-90		1994-96			1997		
	No.	%	No.	%	Share of all immigr.	No.	%	Share of all immigr.
Professional and Technical	19 160	13.7	19 603	17.1	9.7	6 776	17.8	10.8
Executive, Administration and Managerial	8 292	5.8	6 246	5.5	7.5	2 065	5.4	7.8
Clerical and Administrative Support	3 982	2.8	2 390	2.1	3.8	819	2.2	4.5
Sales	1 989	1.4	1 489	1.3	3.7	703	1.8	4.9
Service	6 453	4.5	3 487	3.0	2.2	1 224	3.3	2.3
Farming, Forestry and Fishing	4 646	3.3	3 567	3.1	8.4	1 558	4.1	11.6
Skilled Workers	3 583	2.5	1 613	1.4	0.6	694	1.8	0.8
Total with Occupation	48 105	33.8	38 395	33.5	4.5	13 859	36.4	4.9
Occupation not Specified	94 035	66.2	76 133	66.5	4.8	24 212	63.6	4.7
Total Immigrants	142 140	100	114 528	100	4.7	38 071	100	4.8

[2] *World Focus* (2001), Special Issue on Indian Diaspora - Its Positive Contribution, No. 255, March 2001.

TABLE 1. (*continued*)

	1999			2000			2001		
	No.	%	Share of all immigr.	No.	%	Share of all immigr.	No.	%	Share of all immigr.
Professional and Technical	3 492	11.6	9.4	8 632	20.6	14.7	19 935	28.4	23.8
Executive, Administr. And Managerial	1 112	3.7	7.1	1 644	3.9	7.9	3 062	4.3	11.1
Clerical and Administrative Support	576	1.9	4.2	573	1.4	3.9	643	0.9	3.9
Sales	648	2.1	6.1	689	1.6	5.3	842	1.2	5.4
Service	559	1.9	3.2	798	1.9	2.6	1 041	1.4	2.7
Farming, Forestry and Fishing	1 328	4.4	11.7	1 080	2.6	9.5	1 161	1.7	12.8
Skilled Workers	301	0.9	0.9	308	0.7	0.8	389	0.6	0.8
Total with Occupation	8 016	26.5	5.7	13 724	32.7	7.2	27 073	38.5	11.3
Occupation not Specified	22 221	73.5	4.4	28 322	67.3	4.3	43 217	61.5	5.2
Total Immigrants	30 237	100	4.7	42 046	100	4.9	70 290	100	6.6

Source: Tables 3.20 and 3.25 in Khadria (1999a) for data until 1996, later calculations worked out by the author in Khadria (2004a). Data from the US Immigration and Naturalization Service Yearbooks, the latest being from the Yearbook 2001published in 2003.

Table 2 provides a summary of published brain-drain estimates from sample surveys conducted in four front-ranking Indian institutes of medical and technical education. According to these surveys, the All India Institute of Medical Sciences (AIIMS) in New Delhi stands at the top of the list of institutions from which more than half of its output of graduate doctors (56%) has left for greener pastures abroad during 1956-80. The magnitudes of brain-drain from three Indian Institute Institutes of Technology have also been substantial with a large proportion of their graduated engineers (ranging between 20% and 30%) having left to explore more promising opportunities, particularly in the developed countries.

Globally, the World Competitiveness Yearbook 2000 has presented a forty-seven-country ranking of brain drain, which was compiled on the basis of a survey asking whether "well-educated people emigrate or do not emigrate abroad", in which India has been placed at position forty-second from the top, sixth from the bottom. India has also been assigned a significance score of 3.291 calculated on a ten-point scale between 0 and 10, using a special standard deviation method (SDM) to assign each country a standardised (STD) value or score.[3] The low ranking and score both mean that India has a high degree of brain drain in terms of well-educated people emigrating abroad. The United States is at the top with a score of 8.524, meaning very few educated

[3] Table 8.13 (IMD, 2000 p.500): Labor Force Characteristics. For methodology of arriving at the rankings and the scores, see the chapter on Data Processing Methodology.

Americans emigrate[4], the United Kingdom's ranking is thirteenth with a score of 6.343, meaning that some people emigrate. India is better off, relatively speaking, than Venezuela, Philippines, Russia, Colombia, and South Africa, but worse off than Argentina. It is no wonder then that the average per-hour contribution of people employed within India for the production of India's gross domestic product is amongst the lowest in the world (in 1999, a mere 37 cents per capita in India vis-à-vis just below 37 dollars in the United States, i.e. one-hundredth), even in purchasing power parity (PPP) terms. This naturally is a paradox, because Indian knowledge workers employed abroad contribute very high average shares to those countries' GDPs where they are working.

TABLE 2. Comparative Overview of Brain Drain Estimates of Some Institution-Based Surveys

Indicators	Indian Institute of Technology Bombay, Mumbai	Indian Institute of Technology Madras, Chennai	All India Institute of Medical Sciences, Delhi	Indian Institute of Technology Delhi, New Delhi
Year of study	1987	1989	1992	1997
Period covered	1973-77	1964-87	1956-80	1980-90
Population size	1262	5942	1224	2479
Sample size	501	429	402	460
In India	179	184	200	316
Out of India	322	245	202	144
Magnitude of brain drain	30.8% (+/-2%)	25-28%	56.2% (+/-1.3%)	23.1% (+/-1.5%)

Source: Various Government of India, Department of Science and Technology sponsored institution-based survey studies as cited in Khadria (1999a).

B. Micro Perceptions of High-Skill Indians for Employment Abroad: Findings of A Case Study of Aspiring Skilled Health Professionals (SHPs)

1. The Case Study of Health Workers: Rationale for Selection and Methodology

This section refers to results of a field-survey on the out-migration of skilled health professionals (interchangeably called medical or health workers) the author had carried out in 2002, especially of doctors and nurses, from India to developed economies. The case study was conducted in Delhi because of the city's unique position in medical education, extensive institutional infrastructure, large-scale emigration of medical professionals – particularly from the All India Institute of Medical Sciences (Khadria, 2004b). The sample belonged to premier institution-cum-hospitals of medical education in Delhi, namely All India Institute of Medical Sciences (AIIMS), Maulana Azad Medical College, Jayprakash Narayan Hospital, Safdarjung Hospital, Kalawati Saran Children's Hospital and Lady Hardinge Medical College. These institutions/hospitals were selected considering their high quality of medical facilities, diversity of students and diverse courses and areas of specialisation. From these institutions, a total number of 82 professionals including 34 doctors and 40 nurses were approached and interviewed.

[4] The United States is the most sought-after destination country with highest positive net in-migration in the world. See also Khadria (1991).

The questionnaire contained several items that sought information on the following dimensions:

- Personal information including information on education;
- Information about the decision to go abroad and the major motivational forces for their out-migration;
- Perception of the prospective migrants about the quality of education abroad, on-the-job training and prospects for employment/professional growth.

2. *The Case Study of Doctors: Data and Analysis*

This section refers to the phenomenon of prospective migration of doctors and the causes of their emigration and their perception about their professional status in the host country. It provides a detailed analysis of the information sought from the sample of 34 qualified doctors during the field survey. Out of the 34 respondent doctors, 29 were male and 5 were female. The distribution in terms of marital status shows that a large majority (30) of them were unmarried. All the respondent doctors were between 20 and 30 years of age, showing that the prospective migrants are quite young. It could be from the field survey that the 'inclination to go abroad' was stronger amongst the doctors belonging to the age group 25-30 years.

The respondent doctors were from different states of India, thus making the sample more or less representative of India as a whole. The highest number (6) were from Delhi, followed by five from Punjab (the state from which migration takes place in a large scale, mostly to Canada, United States and the United Kingdom), four doctors belonged to Madhya Pradesh and three doctors each came from Assam, Bihar, Karnataka and Utter Pradesh. It was also observed that most of the doctors had completed their last educational degree in Delhi, which proved that Delhi was amongst the favourite choices of place for medical education in the country. Twenty-two responding doctors had completed their graduation degrees and were pursuing their post-graduation, while twelve respondents had already completed their post-graduation and were working on an internship at the time of the interview.

The All India Institute of Medical Sciences (AIIMS) stood at the first rank in terms of prospective emigration of doctors, with fifteen doctors in the sample. An earlier study conducted in 1992 to analyse the extent of brain drain during the period 1956-80 from this apex institution of medical sciences had reported a very high rate of out-migration of 56% of graduating doctors. The second major chunk of the sample was drawn from Maulana Azad Medical College, Delhi with eleven doctors interviewed from this institute. The remaining eight respondent doctors completed their degrees from seven different institutions. A further 27 respondents had got their degrees from institutions established in Delhi, while the remaining seven respondents got them from outside of Delhi. Most of the respondent doctors viewed that the "medical profession was a well respected profession and was full of innumerable opportunities for serving the society."

When asked about the sources of inspiration for emigration, the total of the first three weights[5], as given in figure 1, shows that 24 respondents wanted to go abroad mainly because of self-motivation. Twenty-three respondents said that they were given inspiration from their overseas friends. An equal number of respondents mentioned that their teachers/mentors/senior doctors inspired them to go abroad, at times by those who

[5] See the section on IT professionals for an explanation of the ranking system.

had already left the home country.[6] 15 respondents admitted that their friends in India have been motivating them. Family and relatives have also been cited by 10 and 7 respondents respectively, as important motivators for their decisions to go abroad.

FIGURE 1. Source of Inspiration for Emigration for Doctors

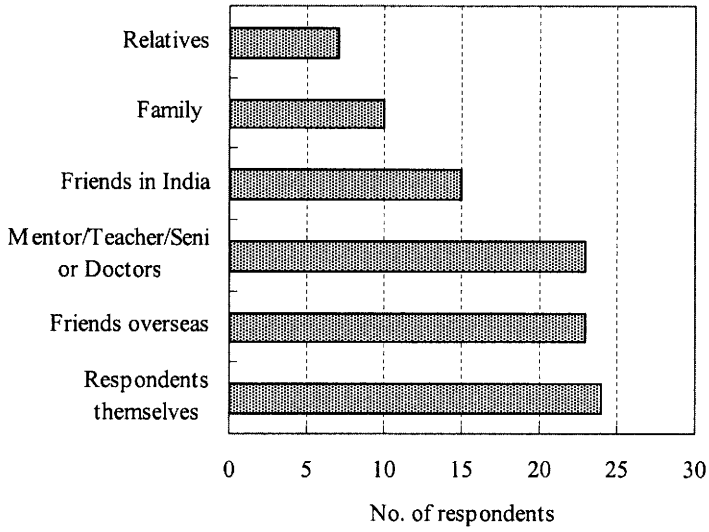


Figure 2 highlights the purpose of out-migration as stated by the respondent doctors. It shows that 29 doctors were planning to go abroad "to get jobs with better training opportunities." Moreover, for 18 respondents it was the most important factor in their decision-making for out-migration. The next important factor was the desire "to ensure rapid progress in the medical profession", of which 28 respondents spoke in favour. Seventeen respondents expressed that their purpose was "to obtain a specific kind of training not easily available in India." Sixteen respondents wanted "to move abroad for getting good employment opportunities" in the host countries, while fifteen respondents mentioned that their purpose for going abroad was to get "medical experience not easily available in India". "Permanent settlement in the host country" was selected by eleven respondents as one of the important purposes for their out-migration. A small number of respondents stated that they would leave for abroad even if they could only get some project or research assignments. This showed that "to get a job with better training opportunities overseas" and "to progress at a comparably faster pace in the professional career" were the most important considerations behind the intentions of out-migration of most of the doctors. These two broadly stated purposes lead to the conclusion that after having had the education and on-the-job training in well reputed institutions of medical education in India, doctors were still sceptical about their future professional growth

[6] Four respondent doctors had contacts with 'Maulana Azad Medical College Old Students Association (MAMCOSA)' and 3 had ties with 'AIIMSONIANS of America' through the Internet, while 3 others mentioned that they were influenced by their 'seniors' (doctors) through the AIIMS Students Union. However, all of them confirmed the role medical associations played in providing a platform to grapple with professional problems, supplying valuable information related to various jobs and educational openings in various countries, as well as the socio-cultural support.

within India, and they strongly felt that experience in foreign hospitals was highly valued in the Indian labour market for health workers.

FIGURE 2. Purpose of Intended Out-Migration of Doctors

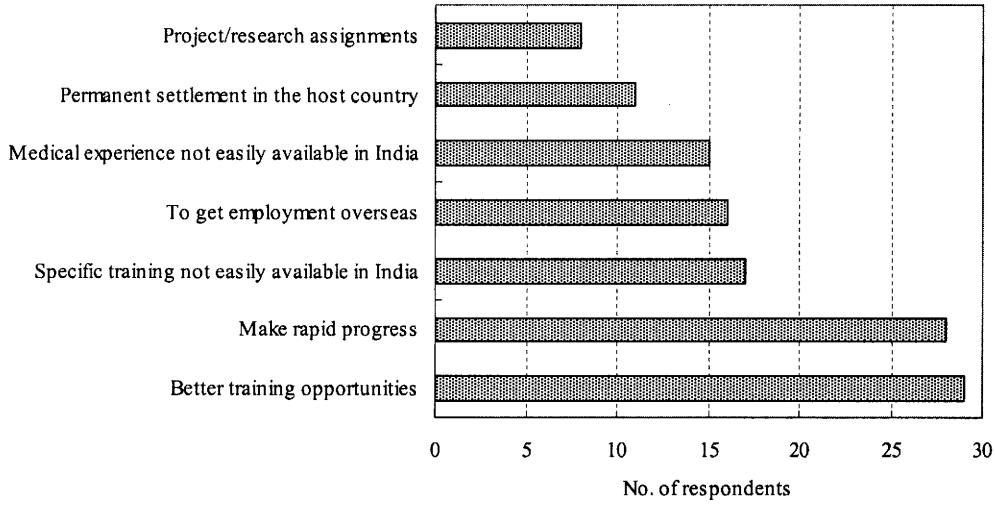


Figure 3 enlists 16 factors, which helped the respondent doctors in choosing their favourite destination abroad. "Higher education" in the host country stood at the top of the list, since – except for one – all the respondents considered this an important factor ('extremely important' for 19, 'moderately important' for 8, and 'less important' for 6 respondents). The responding doctors felt that if they had to make rapid advancements in their professional career, they would certainly need better academic exposure and better professional infrastructure, which they felt was "not easily available in India". The total of 'selection response' category (*i.e.* weight 1, 2 and 3) showed that "better income prospects overseas" was an important pull factor for 24 respondent doctors, of which for 13 it was an "extremely important" one. "Availability of experts in the concerned field", *i.e.* in the medical profession in the host country was mentioned as another important cause for out-migration of doctors. Comparatively "better quality of day-to-day life in the host country" weighted as an important factor by 24 respondents. For 19 respondents, "experience in the host country" was an important pull factor for their out-migration because of its relatively high value in India, the home country. Eighteen respondents had stated that they wanted to move overseas because of "a large number of lucrative employment opportunities in the medical profession". An equal number of respondents considered that they "would be having exposure to better infrastructure abroad" required for the profession. Around one-third of the respondents thought that in India real earnings were quite low when compared with several other countries, despite having the same educational and professional qualification. Fourteen respondents cited "bleak employment prospects" in India as a major push factor for the emigration of doctors to developed nations. "Satisfactory health facilities overseas" (11 respondents), "conducive immigration and settlement policies of the prospective destination countries" (8), "scope for self employment" (8), "access to qualitatively better school education for their

children" (4) and "proficiency in the English language" (4) were reported as some other important considerations for out-migration.

FIGURE 3. Motivating Factors for Out-Migration of Doctors

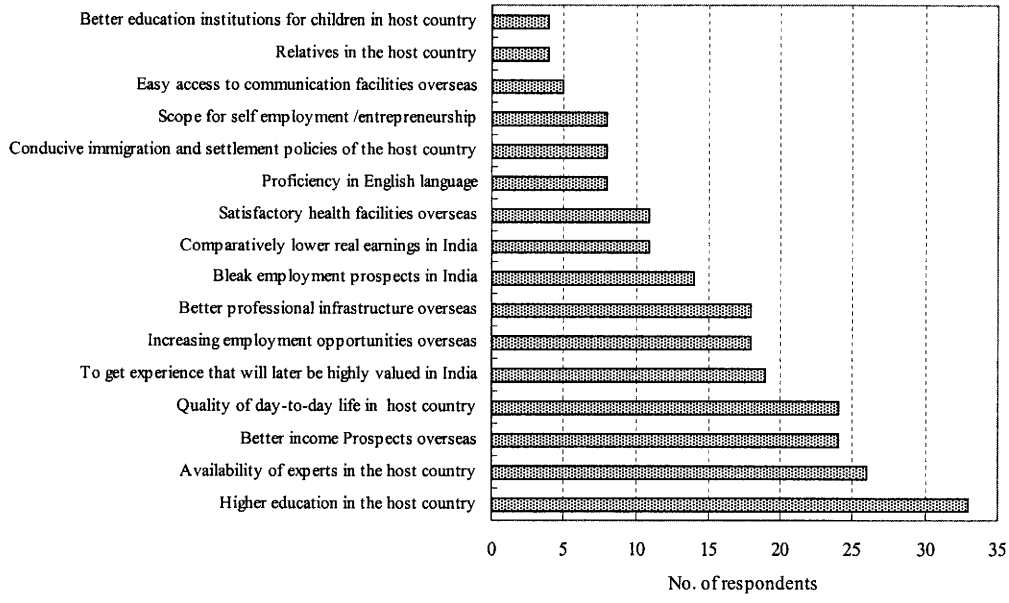


Figure 4 shows that the United States was the favourite destination for medical professionals, as 23 respondents gave it the first preference. For seven doctors, the United States was the second choice, while for the remaining four it was the third choice. The United Kingdom had come out as the second preferred destination, with 11 doctors giving it the first preference, 21 second preference, and the remaining two third preference. Australia emerged as the third preferred destination, followed by Canada, Kuwait, New Zealand and Germany.

It was observed that the medical professionals in the sample had sufficient information about their destination country and the pre-requisites for making their entry possible. Twenty-one of them had already passed certain necessary eligibility tests. The remaining thirteen candidates had yet not appeared for any such test but were planning to sit for one in the next year. Professionals who were going to the United States and Canada were very specific in their choices of institutions/hospitals to which they had applied. In contrast, doctors who were planning to go the United Kingdom were not specific about the hospitals they wished to join; they pointed out that that it was only after clearing the second-stage test of the two-tier process that they would be allowed to apply for specific institutions in the United Kingdom.

Cardiology and internal medicine were the most preferred specialisations for the prospective migrant doctors to be pursued in the host country. It was observed during the fieldwork that, as an area of specialisation, internal medicine was the most preferred specialisation for those with the United States as destination, while surgery was the preferred specialisation for those intending to go to the United Kingdom. However, due to the recently amended favourable immigration policy of the British Government and consequently easy access, a large number of doctors prefer to go to the United Kingdom.

FIGURE 4. Preferred Destination Countries for Out-Migration of Doctors

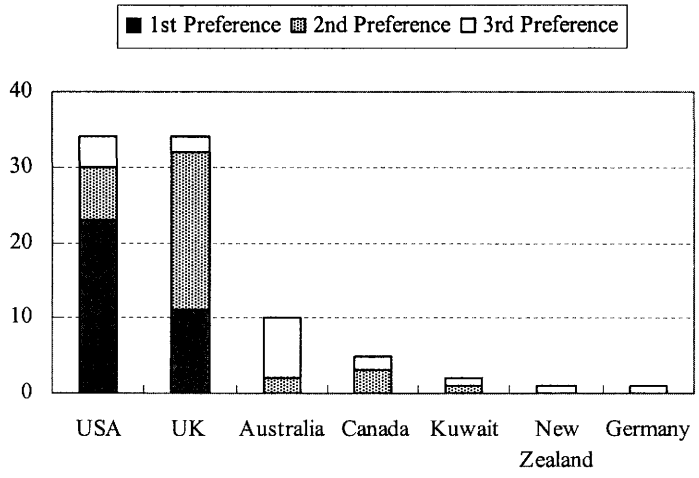


Figure 5 shows the distribution of respondents by intended duration of stay overseas after their planned migration would have materialised. Thirteen respondents wanted to move overseas for 4-6 years while four respondents reported that they could stay overseas for more than a period of 6 years. Five respondents expressed their willingness to leave the home country for permanent settlement overseas. Four respondents mentioned that they had not yet decided about their length of stay abroad. A large majority of doctors (28 out of 34) were hopeful that their career growth would be "faster than in India" in the host country, while five respondents mentioned that it would be "almost the same as in India". Contrarily, one respondent did not expect the professional growth to be faster overseas than in India.

On the intended career choices, the majority of the doctors (15 respondents) had expressed their desire to pursue a career in the field of medical research. Ten responding doctors desired to be in public health services, followed by 6 respondents willing to start their professional career as private practitioners. A career in 'administration' of medical services and other international organisations like WHO, figured as the career choice of three doctors.

When the respondent doctors were asked to rate the quality of medical education and training in India, slightly more than three-fourth of the total sample reflected a sense of satisfaction. Figure 6 shows five respondents to be "very satisfied" while another twenty-one respondents were "moderately satisfied" with the kind of education and training being provided in the Indian health sector. The remaining eight respondents expressed their dissatisfaction on the state of education and training in the medical field. A majority of the respondent doctors (20) felt that if one was educated in the United States or the United Kingdom, one's professional career growth would be faster in India in comparison to the India-educated doctors. On the contrary, six respondents were of the view that the future of foreign educated doctors was not bright in India, while another seven had expressed their inability to say anything in concrete terms on the future of foreign educated doctors in India.

FIGURE 5. Prospective Duration of Stay Overseas

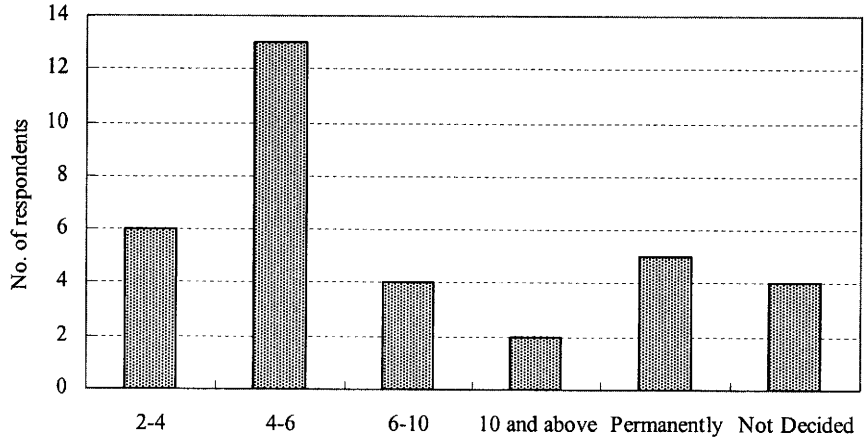
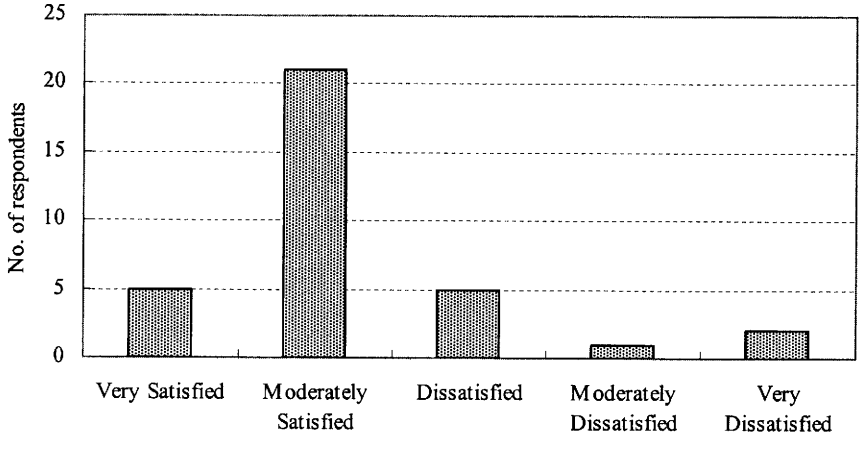


FIGURE 6. Doctors' Perceptions about the Quality of Medical Education and Training in India

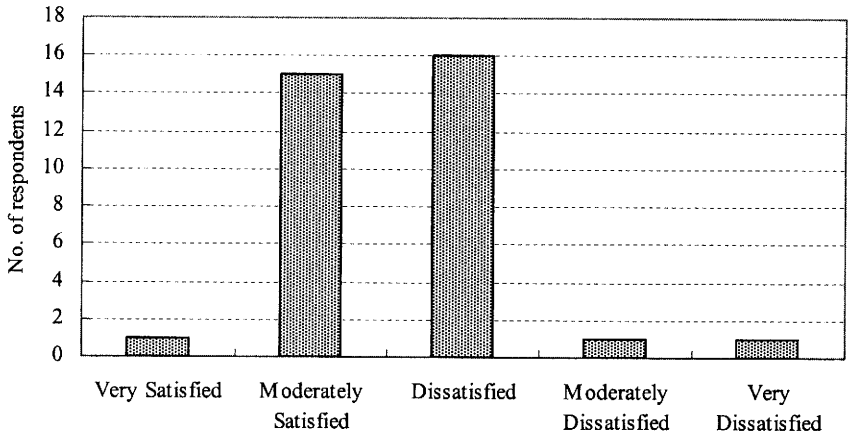


When asked about their prospective contribution in the development of the nation after their return from abroad, the respondents mentioned many diverse ways of contributing. All the respondents had noble intentions about their prospective contributions in the nation's development. Some of them mentioned that they would contribute by sending remittances back home, getting involved in charity work by improving medical facilities, or by providing information, training and consultancy to those medical organisations which were working in rural areas. They could also provide their services through tele-medicine. A few respondents mentioned that capacity building of 'fellow doctors' to provide the latest medical treatment to the masses in India could be one way of contributing to national development. Nine respondents said that they would come back to India and provide their service for the cause of India's betterment. Speaking on the impact of large-scale emigration of highly skilled professionals from India on India's national development, eight respondents expressed it

would have a negative impact because of the loss of human capital. Eight respondents however, were of the view that it would not have any adverse impact because of India's large pool of skilled professionals and educational capacity to fill the gaps caused by emigration. A view was also expressed by some that the emigration of skilled human capital from India would be checked mainly by creating better opportunities for training and work in the concerned sectors within the country.

The respondent doctors were given a five-point scale to weight the level of satisfaction with their present salary package that they were getting in their respective institutions/hospitals. Figure 7 shows that 16 respondents expressed satisfaction at the moderate level and above, while the other 18 respondents were not satisfied. The respondents have come out with different explanations, but the most notable point was that considering the educational qualification and the rigorous training they had, their remunerations were quite low. Moreover, in India, the private sector offered much more lucrative jobs in the medical profession than the public sector. Therefore, the public sector should also provide compatible salaries to the medical professionals.

FIGURE 7. Level of Satisfaction with Present Salary in India



When the respondents were asked to react on a hypothetical possibility that if a handsome remuneration package was offered, would you move beyond your most favoured destination countries, 12 doctors answered positively, while the remaining 22 doctors showed no intention of changing their preferences only on a monetary account. Ten of them said that "quality of education and training (experience) are more important than money". Besides, quality of life, environment, professional freedom, and above all, the scope for pursuing a career in the chosen area of specialisation were more important considerations in such a decision. When asked about the expected monetary returns in the host country, all of the respondents, except one, were hopeful of getting what they expected. Their argument was that there were plenty of employment opportunities overseas in the field of health services, and so they saw no reason to be sceptical about the size of remuneration packet they would be offered in the destination country.

Furthermore, the respondents were asked about the difficulties faced by the medical professionals (especially doctors) while pursuing their career in India. A large number of respondent doctors made the point that to get into medical education was very difficult in India mainly due to limited number of seats and the consequently tough competition.

Caste-based reservation policy in the institutions of higher education[7], including medical education, was cited as one of the major drawbacks of the admission system, which resulted in the lowering down of the standard of education and the quality of professionals as well. Lack of proper training facilities, low quality of medical infrastructure, lack of proper guidance, bleak employment opportunities and lack of qualitative research endeavours were highlighted as some of the crucial hurdles in the advancement of the medical profession in India. When respondents were asked to anticipate the difficulties while pursuing their medical career overseas, most of the respondents felt that socio-cultural problem and racial bias could be the most severe problems overseas which they might have to face abroad. They also voiced the fear of becoming 'second-class citizens' in the host country.

3 *The Case Study of Nurses: Data and Analysis*

This section presents the information related to Indian nurses and their perception about out-migration overseas. The entire sample was drawn from one medical institution of Delhi, *i.e.* Kalawati Saran Children's Hospital. The analysis was based on the information provided by 40 nurses responding through a field survey.

Sixty percent of the sample (24 nurses) was above 30 years of age. Three of them were in their late forties, and they all desired to move overseas because their immediate family members, including children, were staying abroad. Fifteen nurses aged between 25-30 years of age constituted 38% of the sample. Only one respondent nurse was below 25 years. In comparison to the doctors, prospective emigrant nurses were older with an average age of 33 year while the average age of respondent doctors was 25 years. Furthermore, 35 nurses (88%) were married.

Around half of the nurses in the sample (18 nurses) were from Kerala, the state which sent most of the Indian nurses to other parts of the country as well as abroad, and one-fourth (10 nurses) were from Delhi. The other twelve respondent nurses are from eight states – three each from Haryana and Uttar Pradesh, two each from Tamil Nadu and Maharashtra, and one each from Bihar and Himachal Pradesh.

Most of the nurses (32) had completed a diploma in nursing. Four nurses only had a graduation degree, while another four had done both a diploma and a graduation degree. It was realised during the survey that in the nursing profession, a diploma was considered an essential qualification, and if it was accompanied by a degree in nursing, upward mobility in the nursing career became easier. Eleven nurses (more than one-fourth of the sample) belonged to the pre-1990 vintage of education, and they have had more than thirteen years of work experience each. Twenty-six nurses had completed their education during the 1990s, and only three respondents completed their education after the year 2000.

The highest number of nurses (10) in the sample was educated from Lady Hardinge Medical College, New Delhi. One reason for this could be the fact that the Kalawati Saran Children's Hospital was itself affiliated to the college. This was followed by the Kerala University (4 nurses) and the Indira Gandhi National Open University at New

[7] In India, there is a Constitutional requirement of positive discrimination or affirmative action in education / employment whereby a quota of 22.5% of all admissions in government institutions of education / of all government jobs are exclusively offered to (reserved for) applicants belonging to some designated minorities listed as Scheduled Castes and Scheduled Tribes.

Delhi (4 nurses). Some of the respondents mentioned that they preferred to have their diplomas as well as degrees in nursing from the Indira Gandhi National Open University, as it helped in their professional career growth to have completed their last educational degree from an institution based in Delhi.

Twenty-seven nurses had been planning for one to two years to move overseas, and some of them had also qualified necessary tests like the TOEFL (Test of English as a Foreign Language). Five nurses were planning their out-migration for the last 6 years, but were waiting for the right opportunities of better training facilities abroad and better income prospects. Family location was one of the important factors, which forced them to stay back, as moving overseas involved movement of the entire family. Five nurses said they were planning for out-migration only for the last 3-4 years, but had not been able to move for various reasons. A further seventeen nurses mentioned that they would migrate in 1-2 years, as certain eligibility tests needed to be cleared before going abroad. Fifteen nurses said they would take at least 3-4 year for migrating, eight nurses could not say anything on this issue.

Out of the 40 nurses, 11 respondents had cleared the required tests (like TOEFL) to get into the hospitals overseas while 29 nurses had not passed any tests yet.

Figure 8 presents the motivating factors that inspired the nurses' decisions for intended out-migration. "Friends overseas" was a strong factor that helped 20 nurses in taking this decision, apart from the self-motivation of 27 nurses. Family and friends in India were also decisive motivating factors for 16 nurses each, and 8 nurses said that they were going abroad to get employment on the advice of senior nurses, who had already been abroad for some time. Some nurses had taken the help of consultants, who played an important role in influencing the decision of out-migration.

FIGURE 8. Source of Inspiration for Emigration of Nurses

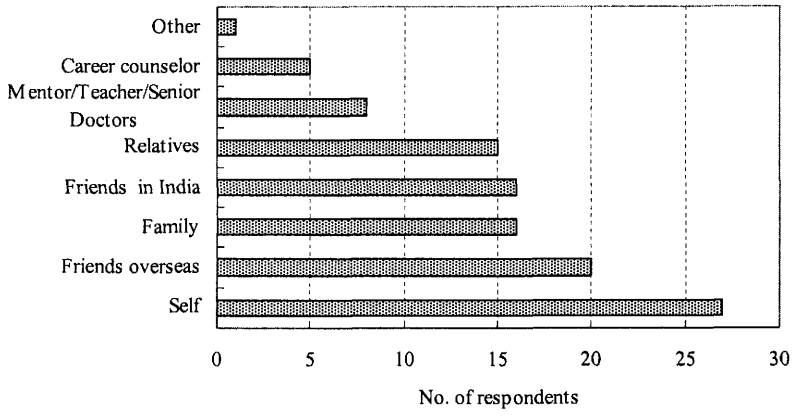


Figure 9 describes the purpose behind the intended out-migration of the respondent nurses. Out of 40 respondent nurses, 31 mentioned that "to get a job with better training opportunities" was the main purpose to go abroad. They thought they could always come back to India after a certain period of foreign training, which would be valued in Indian hospitals. Nineteen nurses wanted to move overseas because they wanted to progress faster in their medical career, which was not possible and feasible in India due to the reservation policies and caste-based politics in the job market (see an earlier footnote on this issue). They also narrated the problems faced by them due to outdated

medical facilities, which emerged as a very important factor. They mentioned that careers in India were stagnant, education and training facilities were not good for nurses and pay packets were also not attractive. One respondent nurse said that she would be going abroad for her research assignment.

FIGURE 9. Purpose of Intended Out-Migration of Nurses

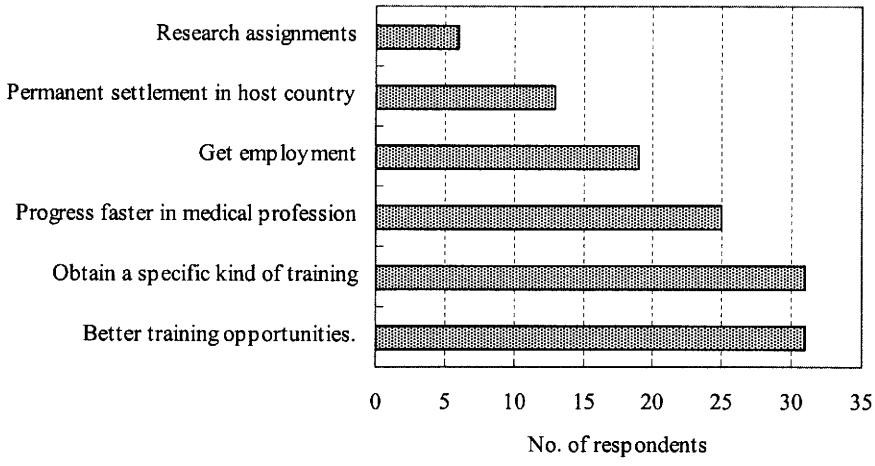


Figure 10 enlists 16 important factors behind the selection of the destination country for nurses. Twenty-six nurses mentioned that "better income prospects overseas" was the most important factor, followed by the "quality of day to day life overseas" (25 nurses). This implies that respondent nurses preferred those countries that offered good life for their families. These choices and factors were quite different from those of the doctors who wanted to move out mainly for better work facilities and training opportunities abroad. "Better infrastructure facilities in the destination country" was the third most important factor for nurses. Sixteen nurses out of 40 mentioned that "to gain a specific kind of training that would be highly valued in India" they would move overseas. One of the other specific factors was that 17 respondent nurses were looking for "better school and education for their children" (first preference by 9 nurses, second and third preferences by 4 nurses each). It was also to be noted here that only 8 respondent nurses mentioned that they foresaw "bleak or low employment opportunities in India." Therefore, one may draw a conclusion that respondent nurses wanted to move to those countries which had better opportunities and support for their families in terms of better infrastructure facilities, day-to-day life style, schools for children, etc., apart from better income prospects overseas.

Figure 11 details the distribution of nurses by their favourite destination countries. Forty nurses were quite clear about their destination countries and had a specific choice for a particular country. The United States was their first choice (all 40 nurses choosing it in their first three preferences), followed by the United Kingdom (25, with 8 in first preference), because of abundant employment opportunities. Third choice was Australia (25, with 3 in first preference) because of its climate and newly emerging employment opportunities specifically after the IT boom. Nine nurses (with 2 in first preference) also considered Canada as a destination country. Some nurses had a liking for Switzerland, Germany, and Malaysia (not in the figure). There was also a clear inclination towards

African countries (4, with 1 in first preference) and Gulf countries (4, with 1 in first preference) because of high pay packets generally offered in these countries.

Out of 40 nurses, 23 had a specialisation in paediatric nursery, mainly due to the sample selection from Kalawati Saran Hospital, which was a children's hospital. All the nurses mentioned that they had a higher chance of career growth in the host country overseas because their specialisation was valued highly there. Concerning their intended duration of stay, 25 nurses wanted to stay abroad for more than 4 years, and some of them wished to settle down abroad permanently if given a chance. Only 5 nurses mentioned that they would come back in 1-2 year because they "want to serve the nation" with knowledge and training acquired abroad.

The breakdown of nurses by their perceptions about the relative career growth abroad as compared to in India showed that 39 nurses perceived that career growth was faster overseas. They also said that reservation policies and monotonous/pre-determined career paths were proving to be barriers in their career enhancement in India, whereas these factors were not present abroad where equality of opportunity would allow them to be judged by their knowledge and competency.

FIGURE 10. Motivating Factors for Out-Migration of Nurses

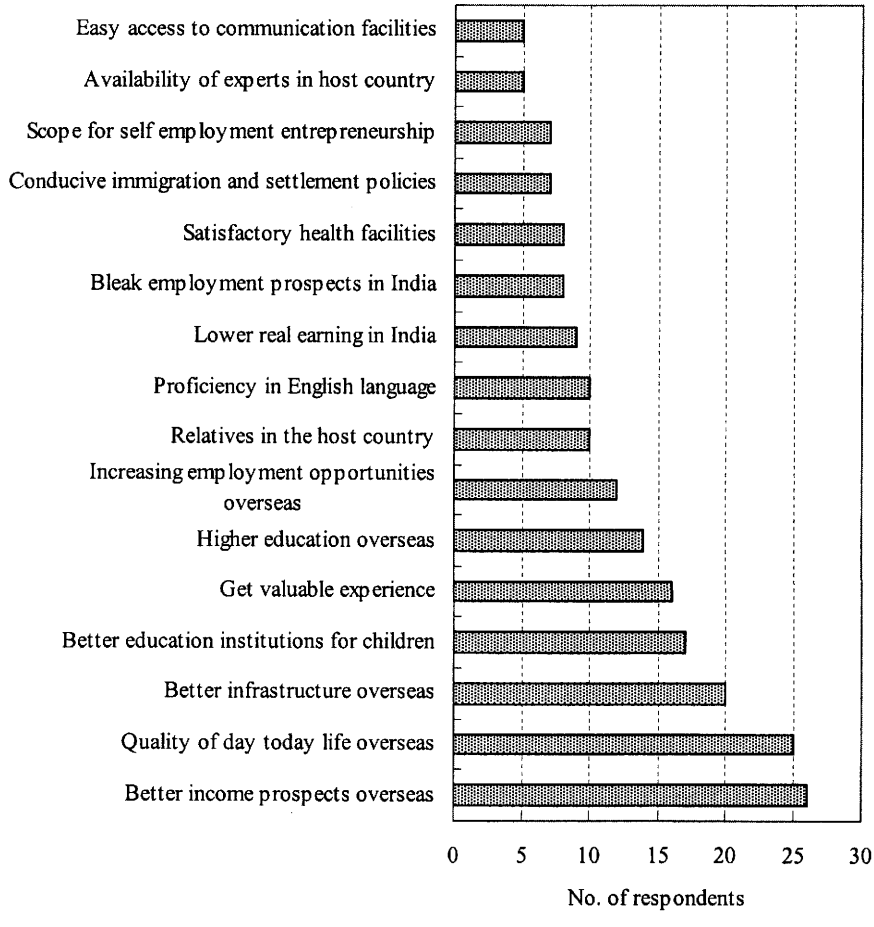


FIGURE 11. Preferred Destination Countries for Out-Migration of Nurses

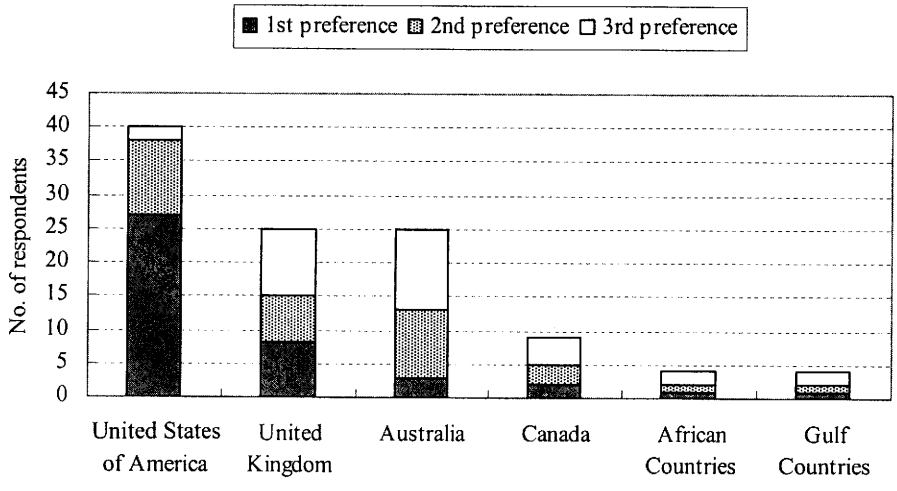
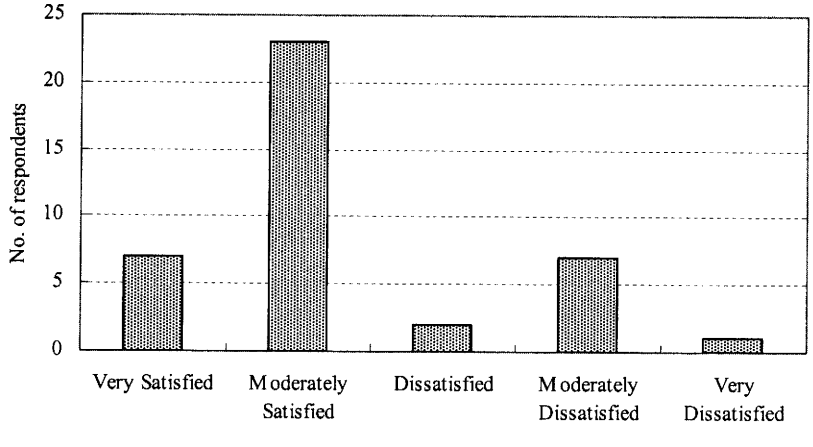


Figure 12 reveals the perceptions of nurses about the education, training and experience provided by medical institutions in India. Twenty-three nurses mentioned that they were 'moderately satisfied' with the facilities, while 7 mentioned that they were 'very satisfied'. Nine nurses were 'dissatisfied', the reason being absence of high quality training facilities for nurses and an absence of opportunities to attend any training programme to learn more about new research and technologies. One nurse was 'very dissatisfied' because of the reservation policies. Overall, 30 nurses were satisfied with the training provided and 10 were dissatisfied.

FIGURE 12. Level of Satisfaction with Education, Training and Experience in India

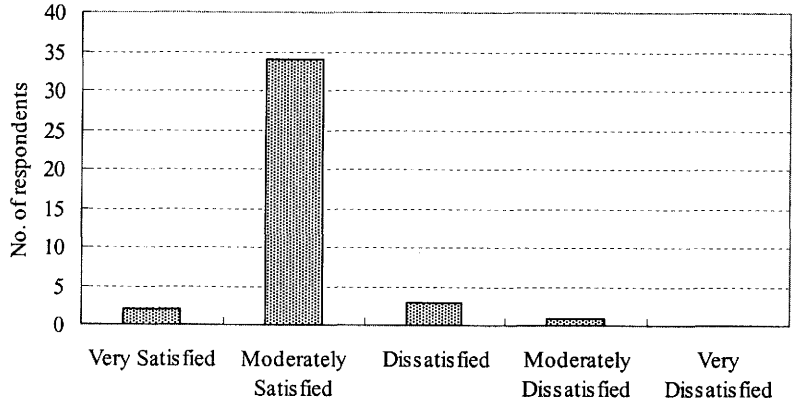


Reflecting on the perceptions of nurses about foreign credentials of nurses in India, according to the 17 respondents, foreign educated and trained nurses had a "very good" future in hospitals in general and private hospitals in particular. Ten nurses said that there were no differences between foreign and Indian credentials because ultimately it was a matter of quality of hands-on training, whether it was overseas or in India. They

also mentioned that Indian nurses were in high demand overseas, proving that Indian nurses were not behind foreign-educated nurses. Further, they felt that the Indian health sector was progressing very fast, and therefore there would be more demand for nurses. However, 11 nurses mentioned that it was very difficult to pursue a nursing career in India, as limited opportunities were available for career growth.

Figure 13 lists the level of monetary satisfaction derived by the nurses from their existing salary in India. Thirty-four respondent nurses were "moderately satisfied" with the existing salary levels, but only two were "very satisfied." Three nurses were "dissatisfied," and one was "moderately dissatisfied" with the existing salary. They mentioned that salaries were very low in government hospitals as compared to the services rendered by them, in terms of high workload and long working hours.

FIGURE 13. Level of Satisfaction with Present Salary in India



4. *Random Questions to Nurses*

When the nurses were asked about their awareness of possible difficulties that they might have to face overseas, 22 nurses confirmed this. The respondents mentioned that they might have to face a number of problems of adjustment to the new culture, such as accommodation, food, racial discrimination and language problems. Apart from these, disruption of family life, change of climate, new life style, and effective economic and penal disincentives linked to performance failure were also some other possible difficulties of which they were aware. They also mentioned some of the facilities being provided by the foreign hospitals, for example accommodation, handsome pay packets, chances of further training for career enhancement and insurance (social security). However, the respondents considered that further training facility and income were the most favourable facilities offered abroad. They were mostly confident about receiving good future earnings in the host country with the only exception of one respondent, who was sceptical about the net benefits in case she was to take the services of foreign placement agencies which were charging high fees, sometimes exorbitantly.

When the nurses were asked about their contribution to the national development if they would not come back, they mentioned that they could do so in various ways. One of the important ways mentioned was through charity, both in cash and kind. Some of the nurses mentioned that they would like to participate in knowledge sharing from abroad.

However, 12 nurses could not answer this question. They mentioned that though it was difficult for them to tell what exactly they could do, they surely wanted to contribute to the nation's development. Most importantly, 7 nurses mentioned that they would definitely come back to their home country, India.

Most respondents mentioned that after coming back they would serve the nation through better knowledge and service-experience gained abroad, and that they would also be involved in some charity work. They further emphasised that their enriched knowledge would be their main contribution in the national development of India.

When asked "what do you think about the situation when more and more skilled out-migration is taking place from India?", the respondents said that out-migration would take place in the future as well, because it would not depend on their migration decisions only, but also on the government policies related to education, employment, reservation, etc. They also argued that if one had to minimise migration, one ought to provide world-class training and other facilities with good income prospects to the next generation of highly-skilled Indians. If the nation failed to do this, migration of the next generations would also continue to be there.

III. STUDENT MIGRATION IN HIGHER EDUCATION- the Emigration of 'Semi-Finished Human Capital' from India

An essential pre-requisite for looking into skill migration trends is the availability of systematic and organised data on international migration of the highly skilled from India. India does not have any systematic data collection or complete data set on migration abroad, whether for the highly skilled or otherwise. Some data are available on out-migration of tertiary-level students (considered part of life-time Human Resources in Science and Technology (HRST) stocks and flows by the Canberra Manual, because they are eligible to enter the high-skill labour market on the basis of education already acquired at the preceding level of study programmes) from India but emigration records for HRST are generally scanty and patchy in India.

Concerning the emigration of Indian HRST to other countries, Indian sources thus offer no help except for some institution-based sample surveys of brain drain, such as from a few IITs, the All India Institute of Medical Sciences, and the Banaras Hindu University. Since immigration statistics in developed receiving (host) countries are usually more comprehensive and more reliable than emigration statistics from India, this section looks at HRST immigration statistics of the 'main receiving country for Indian HRST', which is the United States, and presents tables from some of the US sources, *e.g.* on PhD awardees' "plans to stay" and "firm plans to stay" in the United States for postdoctoral research.

It was not possible to include the immigration statistics from host country sources other than a few American sources. Apart from the fact that most of these are not easily accessible from India, some that are available do not provide adequate breakdown for India as a separate country. Indian statistics are merged into 'Asian' or 'South Asian' statistics in these sources, making them less useful for the purpose. Having noted this, a selection of tables containing various types of mobility data on Indian HRST is presented below.

Table 3 provides the distribution of Indian students who have gone abroad for higher studies under various government schemes during the period from 1991-92 to

1997-98. The table shows that the outflow of students from the academic fields of 'engineering and architecture', 'science' and 'agriculture and forestry' have declined substantially, while the outflow of students of the subjects 'commerce and business', 'arts', 'fine arts', 'law', and 'medicine' has increased over the years. During the mid-90s, the out-migration of Indian students for higher studies has gone up very sharply. It reached its lowest level during 1993-94, but in the following years it increased at an exceptionally high rate throughout the period for which data are shown in the table.

TABLE 3.Number of Students Going Abroad under Various Government Schemes for Higher Studies, by Field of Study

	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	% fem.
Engineering & Architecture	2 390	2 460	709	792	703	1 473	1 014	9.5
Science	1 384	1 447	575	340	387	631	789	16.2
Technology & Industry	121	115	43	141	98	381	325	10.8
Commerce & Business	946	795	341	646	957	1 777	2 592	11.3
Arts	204	191	130	111	177	235	302	42.1
Agriculture & Forestry	94	66	12	16	15	80	11	54.5
Medicine, Pharmacy & Veterinary Science	350	449	85	327	370	907	607	16.8
Law	26	21	9	18	23	43	55	29.1
Banking/Banking Institutions	14	6	9	2	25	38	15	6.7
Fine Arts	30	69	0	42	39	69	62	46.8
Others	905	880	371	548	684	792	962	23.8
Total	6 466	6 499	2 284	2 983	3 478	6 426	6 734	15.8

Source: Ministry of Human Resource Development, Indian Students/Trainees Going Abroad, cited in Manpower Profile 2001.

Table 4 is an extension of table 3 in the sense that it provides the distribution of Indian students and trainees who have gone abroad for higher studies under various government schemes, by field of study and continent. These data are presented only for two consecutive years, 1996-97 and 1997-98. The table shows that America has been the most favoured destination for Indian students for higher studies, followed by Oceania (Australia and New Zealand) and Europe. Students from all academic fields have gone to these continents. As a destination for out-migration of Indian students, Asian countries could not attract comparable numbers of students from India.

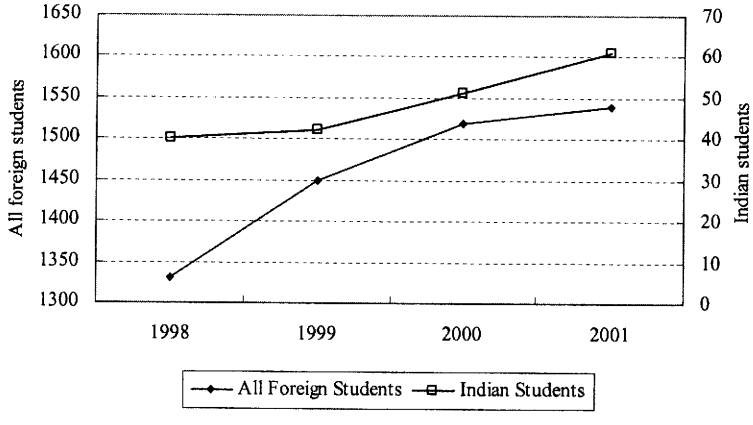
The highest number of students has gone abroad for higher studies in the academic fields of commerce, business administration and management followed by engineering and architecture, and medicine. These figures may be indicative of the government's inclination towards promoting quality and excellence in the emerging areas of science and technology, commerce, medicine and management. The data in this table are only shown in the form of percentages, since the data are limited to the number of those who have gone abroad under government schemes. Hence it provides only a partial picture of the presence of India's "semi-finished" HRST in the world market of human capital. The next three figures give a more complete picture of the out-migration of Indian students.

TABLE 4. Indian Students Going Abroad on Government Schemes, Broken Down by Continent (%)

	America		Europe		Asia		Oceania		Others	
	96-97	97-98	96-97	97-98	96-97	97-98	96-97	97-98	96-97	97-98
Engineering & Architecture	69.9	63.8	18.3	17.2	0.3	2.0	10.7	15.1	1.0	2.0
Science	64.5	59.7	12.7	17.9	0.3	0.8	21.6	18.8	1.0	2.9
Technology & Industry	42.5	23.7	13.9	11.7	1.0	0.6	38.8	63.1	3.7	0.9
Commerce, Business admin. &Management	31.3	21.6	18.2	16.7	3.2	3.1	44.6	57.6	2.8	1.0
Arts	57.9	50.3	21.3	31.8	1.7	2.0	18.3	13.6	0.9	2.3
Agriculture & Forestry	28.8	45.5	51.3	27.3	0.0	0.0	18.8	27.3	1.3	0.0
Medicine, Pharmacy, Dentistry & Veterinary Sciences	36.8	7.4	46.9	82.7	0.4	1.2	10.5	7.4	5.4	1.3
Law	18.6	25.5	74.4	70.9	0.0	0.0	4.7	3.6	2.3	0.0
Banking Services	39.5	26.7	42.1	13.3	0.0	0.0	18.4	60.0	0.0	0.0
Fine Arts	68.1	72.6	15.9	22.6	0.0	0.0	15.9	4.8	0.0	0.0
Others	38.5	41.7	14.9	20.4	1.3	2.6	38.9	32.6	6.4	2.7
Total	47.0	36.0	22.1	24.3	1.3	2.2	26.7	35.9	2.9	1.7

Source: Compiled by author from Government of India, Ministry of Human Resource Development, *Indian Students and Trainees Going Abroad*, New Delhi.

FIGURE 14. Foreign Students Enrolled in Tertiary Education in OECD Countries 2001 (thousands)



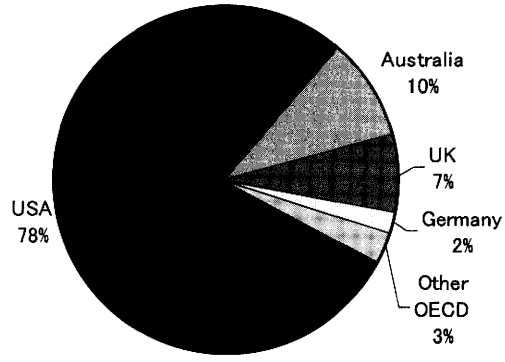
Note: Data for 1998 exclude Belgium, Greece, Mexico, the Netherlands, Portugal and the Slovak Republic; data for 1999 excluding Greece and Portugal; data for 2000 exclude Greece and Luxembourg; data for 2001 exclude Canada, Greece, Luxembourg and Portugal.
Source: OECD Education database.

Figure 14 presents data from OECD's education database, showing the number of foreign students using the left-hand axis) and the number of Indian students (using the right-hand axis) enrolled in higher education studies in OECD countries from 1998 to 2001. In both cases, the numbers have been rising. The number of foreign students

enrolled in tertiary education in OECD countries increased from 1.3 million to 1.5 million in those four years, of which the number of Indians went up from 40 thousand to 61 thousand.

Clearly, the Unites States are the most favoured destination, attracting 47 thousand Indian students in 2001, accounting for 78% of all Indian students enrolled in OECD countries (see figure 15).

FIGURE 15. Distribution of Indian Students in Tertiary Education over Receiving OECD Countries, 2001



Note: Excluding data for Canada, Greece, Luxembourg and Portugal.
Source: OECD Education database.

Figure16 further shows that Indian students accounted for 4% of all foreign students enrolled in tertiary education in OECD countries in 2001. A far larger share was registered for the United States, where 10% of enrolled foreign students were Indian.

FIGURE 16. Indian Students as a Percentage of All Foreign Students in Receiving Country, 2001

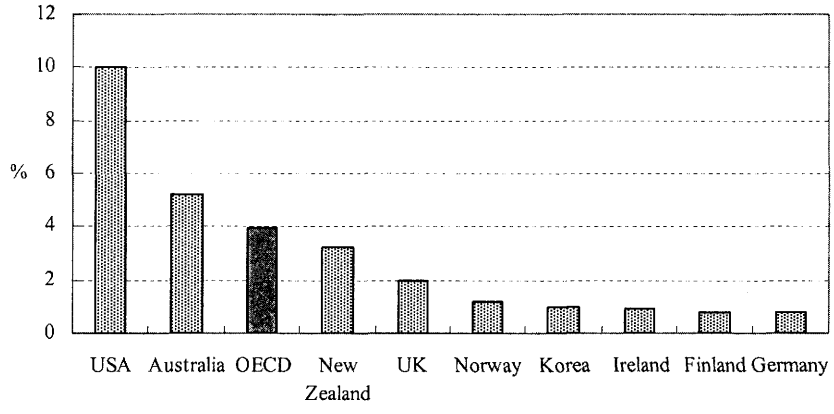


Table 5 contains the flow data of Indian students who have gone to the United States particularly for higher studies between 1970 and 2001. Even a cursory look on the table is sufficient to convey that there have been massive fluctuations in the outflow of Indian students to the United States.

TABLE 5. Indian Students Entering the United States, 1970-2001

	Number of Students	Average for One Year
1970-74	24 126	4 825
1975-79	14 385	2 877
1980-81	..	..
1982-84	16 699	5 566
1985-89	54 804	10 961
1990-91	29 648	5 930
1992-93	27 791	13 875
1994-96	48 399	16 133
1997	..	..
1998	25 543	25 543
1999	28 335	28 335
2000	39 795	39 795
2001	48 809	48 809

Source: INS, Statistical Yearbook; data until 1996 cited in Khadria, 1999, The Migration of Knowledge Workers: Second Generation Effects of India's Brain Drain, Sage publication, New Delhi.

Table 6 contains the distribution of Indians who received their doctorates from US universities by major field of study and their intention to stay in the United States even after completing their education. It is evident from the table that more than 50% of the total has "firm plans to stay" (*i.e.* they have confirmed offers of postdoctoral appointments). A close analysis of the table also shows that a comparatively lower number of doctoral recipients from social sciences have "plans to stay" (*i.e.* intentions to stay, possibly supported by applications, but no confirmed offers of postdoctoral placements yet) in the United States. Analysis by year shows that the proportion of Indian doctoral recipients in all fields, who plan to stay in the United States as well as those who have firm plans to stay generally increased after 1990, with the exception of some years.

Table 7 provides the percentage shares of Indian doctoral recipients in 1992-93 in the US universities in science and engineering, who have been working in the United States in the years 1994, 1995, 1996, and 1997. The data shows that a comparatively larger percentage of Indian doctoral recipients in engineering, and a comparatively lower percentage in the social sciences have been returning to the United States as immigrants (permanent-stay visas) after completing their temporary student-visa stays. It is noticeable that the percentage of Indian doctoral recipients returning to the United States, after the 'mandatory two-year stay' outside the United States (which is the reason why the numbers are increasing as the years go by), has increased consistently over the years for all disciplines, except for the life sciences, which shows a fall between 1996 and 1997, thereby indicating a net emigration from the United States.

TABLE 6.Indian Doctoral Recipients from US Universities, with Plans to Stay in the United States, 1991-99

	1991	1992	1993	1994	1995	1996	1997	1998	1999
All Fields									
No. of PhDs	924	1072	1139	1289	1425	1500	1427	1285	1077
% plan to stay	74.6	82.1	80.8	81.4	82.7	84.3	80.7	85.3	88.9
% firm plan to stay	56.1	56.8	50.7	51.4	52.4	58.8	59.4	65.5	64.8
All Sciences & Engineering									
No. of PhDs	752	860	932	1065	1206	1276	1211	1082	888
% plan to stay	73.7	81.7	81.4	81.8	83.2	85.0	81.5	86.8	89.6
% firm plan to stay	54.3	56.4	49.6	50.3	52.4	59.0	59.5	67.8	64.6
Natural Sciences									
No. of PhDs	304	365	382	474	499	520	515	471	406
% plan to stay	74.0	84.1	82.5	82.1	83.6	87.3	81.0	87.5	90.6
% firm plan to stay	57.2	60.3	52.4	53.0	56.3	60.8	57.3	67.3	63.8
Engineering									
No. of PhDs	357	405	448	480	572	625	587	518	368
% plan to stay	76.2	82.7	82.1	83.8	85.5	86.2	83.8	88.2	90.8
% firm plan to stay	53.5	54.8	46.7	49.0	51.0	60.2	63.5	71.2	67.1
Social Sciences									
No. of PhDs	91	90	102	111	135	131	109	93	114
% plan to stay	62.6	67.8	74.5	72.1	71.9	69.5	71.6	75.3	82.5
% firm plan to stay	47.3	47.8	52.0	45.0	43.7	46.6	47.7	51.6	59.6

Notes: Foreign doctoral recipients are on temporary visas. Natural sciences include physical, earth, atmospheric, oceanographic, and biological sciences. Social sciences include psychology, sociology, and other social sciences. Those who 'plan to stay' think that they will locate in the United States. Those with 'firm plans to stay' have a post-doctoral research appointment, or academic, industrial, or other firm offers of employment in the United States.

Source: National Science Foundation, United States, Science and Engineering Indicators 2002.

TABLE 7.Indian Recipients of Doctoral Degrees in Science and Engineering in 1992-93 from US Universities, Working in the United States, 1994-97

	All Sciences & Engineering	Physical Sciences	Life Sciences	Engineering	Social Sciences
Number of Indian PhD recipients in the Unites States in 1992-93	1 549	423	237	740	149
% in the United States in 1994	77	72	70	85	56
% in the United States in 1995	80	77	75	89	56
% in the United States in 1996	82	80	82	89	58
% in the United States in 1997	83	81	79	90	58

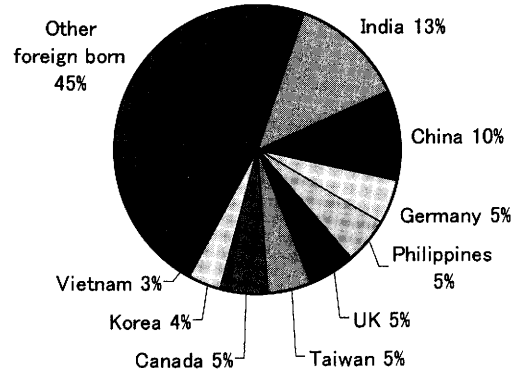
Notes: Foreign doctoral recipients are on temporary visas. Physical sciences include earth, atmospheric, and oceanographic sciences, mathematics, and computer sciences. Social sciences include psychology, sociology, and other social sciences.

Source: National Science Foundation, United States, Science and Engineering Indicators 2000.

In 1999, there were 165 thousand Indian residents in the United States with a science and engineering highest degree. They accounted for 13% of the total number of foreign-born US residents with S&E highest degrees, which was more than any other country, see figure 17.

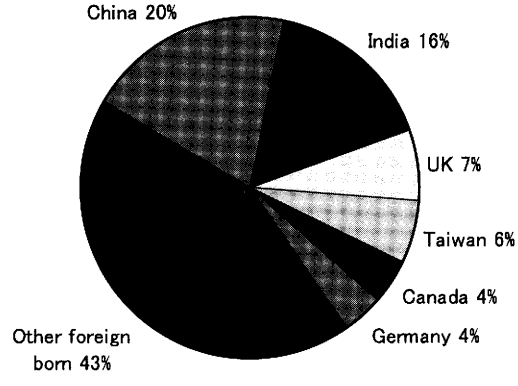
India also accounted for a high share of foreign born residents residing in the United States in 1999 with a science and engineering doctorate, 16% or 30 thousand people, second only to China, as is shown in figure 18.

FIGURE 17. Foreign-Born US Residents with S&E Highest Degrees by Place of Birth, 1999



Note: Data do not include individuals with only foreign degrees who were not in the United States in 1990.
Source: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

FIGURE 18. Number of Foreign-Born US Residents with S&E Doctorates by Place of Birth, 1999



Note: Data do not include individuals with only foreign degrees who were not in the United States in 1990.
Source: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

Table 8 gives a very comprehensive overview of Indians amongst the science and engineering faculty in the US higher education by teaching field in a comparative perspective. The table unfolds that amongst the American science and engineering faculties, almost 7 thousand teaching staff are of Indian origin, constituting 3% of the total faculty strength and are 15% of the total faculty of foreign origin in science and engineering in 1997. The largest chunk of Indians is concentrated in engineering, followed by mathematics and computer science, where they constitute almost 7% and 5% respectively of the total teaching faculty. In contrast, their representation is quite low in physical and life science faculties.

TABLE 8.Indians Amongst Teaching Staff at Science and Engineering Faculties in the United States by Teaching Field, 1997

	Total Science & Engineering	Indian origin	% of total	% of foreign	Female % of Indian persons
Total S&E	224 707	6 876	3.1	15.3	12.1
Physical Sciences	37 020	688	1.9	9.3	16.7
Life Sciences	53 055	1 014	1.9	13.4	31.6
Math. & Computer Sciences	44 375	2 086	4.7	18.3	13.9
Social Sciences	65 509	1 491	2.3	15.5	6.3
Engineering	24 748	1 597	6.5	17.8	0.9

Note: Data includes first job of post-secondary teaching at four-year colleges and universities in the United States; does not include faculty in two-year or community colleges, or those who teach as a secondary job.

Source: Computed and compiled from National Science Foundation, United States, Science and Engineering Indicators 2000.

IV. HIGH-SKILL RETURN MIGRATION: A Case Study of Return Migrants' Role in Making Bangalore a Corridor for International Mobility of IT Professionals

A. The Case Study of Bangalore: Rationale for Selection and Methodology

Focusing on return migration to India, a field study was conducted in the city of Bangalore in the month of November 2002 by the author of this paper. The field survey was intended to tap the experiences of return migrants in the host countries, particularly in terms of the gains derived as well as the difficulties faced by them during their stay abroad vis-à-vis their motivational expectations, and plans after return to India. The focal point of this entire exercise, however, was on finding out the role and importance of return migrants in the development of the city of Bangalore as a "corridor" for movement of IT professionals internationally.

The selection of Bangalore for the study of return migrants was primarily based on the popular perception that the city has been in the process of developing as 'a gateway to new global frontiers' and harbinger of a new global labour force that worked in cyberspace. Further, a survey conducted by the National Association of Software and Service Companies (NASSCOM, 1995) covering the headquarters of the top 200 software companies in India revealed that "68 companies were located in Bombay (now Mumbai), 56 in Bangalore and 30 in Delhi. The remaining one-quarter of the companies were distributed among Hyderabad, Madras, Calcutta and Pune". Besides, Bangalore has

another major distinction of being located in a state, namely Karnataka, which has a long history of support for science and higher learning, and a flourishing tradition of engineering and technology through the establishment of several apex institutions, *e.g.* Bharat Electronics Limited (BEL, 1956), Hindustan Aeronautics Limited (HAL, 1960) and the Indian Institute of Science (IISc), which, apart from being second to none in quality, were of paramount importance both in the concerned field of academics and strategically. Encouraged by this popular support for engineering and technology, and enriched by the development of professionalism, Bangalore has emerged as the key location for software development in India. Considering this, the so-called 'Silicon Valley of India' was an obvious choice for conducting the field survey.

1. The Sample

For conducting the field survey, a very specific kind of sample, comprising skilled return migrants, had to be identified. Since no statistics were available about return migrants in India, this task could not have been accomplished even in Bangalore. To make the survey feasible though, a two-step process was adopted. As a first step, using informal contacts, some professionals were approached by e-mail and telephone. At the second stage, the willing respondents were interviewed. While approaching or contacting the respondent return migrants in Bangalore, care was taken to cover diverse types of software companies so as to make the sample as representative as possible.

Primary information was sought on a comprehensive questionnaire, designed by the author and his team. The questionnaire contained 48 major items, each with some sub-items, distributed under five different headings, namely:

i. Personal information;
ii. Information on out-migration;
iii. Information on return migration;
iv. Impact of return migration;
v. Relationship with and involvement in Diaspora Associations.

The questionnaire was used to interview 45 respondents, mostly belonging to the field of information technology. Besides having written accounts of the responses noted down by the interviewers, several interviews were also tape-recorded for in-depth analysis later on.

The sample for the field survey consisted of 39 males and 6 females. The composition of the sample is skewed in favour of married professionals, as 35 out of 45 respondents were married, constituting just over three-fourths of the sample, and the remaining 10 were unmarried. Out of the 45 respondents, 21 were born in the state of Karnataka, of which Bangalore is the capital city, and 21 in other states. One respondent was born abroad, while two respondents did not report the place of their birth in the written questionnaire, possibly due to oversight.

The age profile of the sample shows that almost two-thirds of the respondents (*i.e.* 30 out of 45) were between 25 and 35 years old. As we moved further on the age ladder, the number of respondents went down substantially, and the lower (20-25 years) and upper (45-50) extreme class intervals had only one respondent each. The conclusion was that returning IT professionals to Bangalore were mostly young, with a mean age of 33 years.

The breakdown by educational qualification reveals that out of 45 respondents, 20 were graduates, followed by an equal number of postgraduates. Four respondents had research degrees at the PhD level. One of the returned migrants reported that he had gone abroad after completing a three-year diploma course from the National Institute of Information Technology (NIIT) – a well-reputed institution at the diploma granting level in the field of computer education.

All the respondents had graduated from within India and almost half of them received their degrees from Karnataka state itself, except for the sole foreign-born candidate who was educated abroad. Thirteen respondents had done their post graduation in India and five did abroad. But unlike graduation and post-graduation, out of four research degree holders only one respondent had done his PhD in India and the remaining three abroad. The notable point here is that the respondents who did their post-graduation or PhD degrees abroad had all also received foreign fellowships.

The respondents' answers substantiated the fact that students in professional courses like engineering and IT are lured into foreign institutions more by the assurance of financial assistance than either the quality of education or its 'brand' name. In contrast to the common misnomer in India that most of the brain drain from India is taking place from the apex institutions of national/international reputations such as the Indian Institutes of Technology (IITs), Indian Institutes of Management (IIMs), Indian Institutes of Science (IISc) or Regional Engineering Colleges (RECs), our sample showed that out of 45 respondents only two were from the category of IITs/IIMs/IISc and the majority of them (24) had completed their graduation from other state- and central-government universities, and colleges, both private and public. But this is not true for post-graduation and research, wherein out of 13 respondents, six did their post-graduation at IITs/IIMs/IISc and one at REC. The lone research-degree holding respondent had his doctorate from one of the apex institutions of management in India, the IIM. The emerging scenario was partly explained in terms of the fact that in a profession like IT, higher education (post-graduation and research) is a very costly affair, particularly in terms of the opportunity cost to the students, and most students are unwilling to pursue further higher studies unless compensatory financial packages are offered.

2. *Results from the Survey*

Table 9 shows that the United States was the most favoured destination for highly skilled Indian IT workers, as out of 56 total destinations for the 45 emigrants from India, 36 were towards the United States. Several pull factors accounted for this choice, including better infrastructure in the professional establishments and 'favourable' immigration policies for granting visas to IT professionals until then. The United Kingdom was found to be the second most sought after destination, particularly because of the traditional bond between the two countries and a close resemblance in their education systems and because of the conducive immigration policy of the British government in admitting S&T personnel. Due to the anticipated shortfall of skilled professionals in general and of IT professionals in particular in the twenty-first century, not only the traditional receiving countries like the United Kingdom, but also Germany, France, Japan, Belgium, Denmark, Ireland, Korea and Singapore had started opening their markets to Indian professionals (Khadria 2001a). Despite having been a traditional destination country for Indian migrants of all types (*i.e.* skilled, semi-skilled and

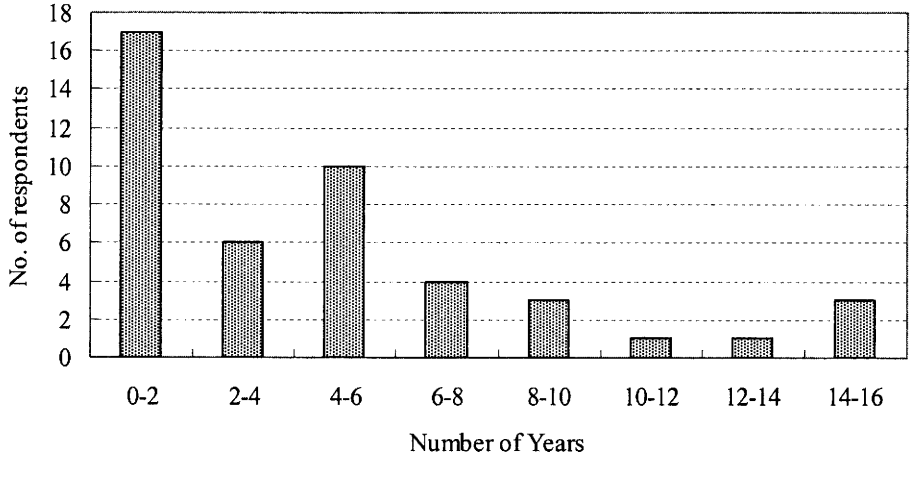
unskilled), Canada was not represented adequately in the sample from Bangalore, as there was only one returned migrant who could be approached. Most of the returnees in the Bangalore sample had been to the North American and European countries and only a very small proportion had been to Asian and African countries.

TABLE 9. Countries of Sojourn of Return Migrants

	No. of respondents
United States	36
United Kingdom	7
Germany	4
France	3
Belgium, Canada, Ghana, Hong Kong, Malaysia, Switzerland	1
Total	56

The distribution of return migrants in terms of years of stay in the host countries had revealed that more than one third (38%) of the return migrants had gone overseas for a very short period, *i.e.* less than two years (see figure 19). This temporary, short duration migration was explained by the fact that the majority of the returned migrants had gone abroad on an assignment or project entrusted to them by their employers in Bangalore. Three out of every four respondents had stayed in the host countries for less than six years. Only three respondents had stayed overseas for 14-16 years, reflecting a substantially low representation of long-term migrants in the sample. The average span of residence abroad for the entire sample turned out to be 4.6 years.

FIGURE 19. Length of Stay Abroad of Return Migrants (in years)



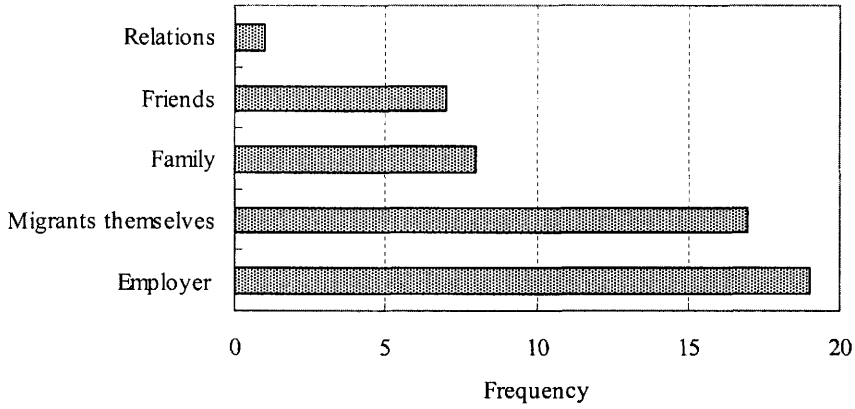
Concerning the return migration, almost half of the respondents had started working in Bangalore only a few years back (see table 10). Three out of every four in the total sample were working in Bangalore for less than 6 years, while only 12 respondents have had stayed and worked in Bangalore for more than 6 years.

TABLE 10. Employment Length of Return Migrants in Bangalore (in years)

	0-2	2-4	4-6	6-8	8-10	10-12
No. of respondents	19	6	8	6	4	2

It is clear from figure 20 that employers were the most important motivators for out-migration of professionals from Bangalore. They allowed their skilled employees to avail the offers/opportunities of lucrative professional assignments (called "projects") abroad, particularly in the United States. Another important source of emigration for professionals from India was the willingness of the respondents themselves, for they were found to be highly desirous of getting on to the greener pastures. The role of other closely related people, including family, friends and relatives, did not seem to be very significant in precipitating the emigration of highly skilled workers.

FIGURE 20. Sources of Motivation for Emigration



Note: The frequencies add up to more than the number of respondents because some respondents chose more than one variable of motivation.

Figure 21 provides the distribution of motivational factors behind out-migration, though from a different perspective. This figure shows that almost half of the respondents (23 out 45) went abroad mainly to grab the opportunity to work on project assignments, which were available to them through their employers in India. Eight respondents had stated that one of their latent purposes behind going abroad was to gain professional experience, because, to them, work-experience abroad was of comparatively high value in India. Thirteen returnees stated that their purpose for going abroad was to get additional higher education in the host country, although only nine of them were successful in doing so. A very striking point that emerged from this figure was that not a single respondent had gone abroad to settle down permanently. Assuming that this followed from a true expression of returnees' intent in going abroad, it might have led the researcher to conclude that the emigration of IT professionals from India was more of a temporary phenomenon aimed at fulfilling the short term gains of the emigrants who were preoccupied with the aim of coming back. Of course, this result was biased by the fact that many of those willing to settle abroad might have actually done so, and therefore fell outside the sample population.

For identifying the push and the pull forces behind the out-migration of returned professionals, the respondents were asked to select and explain the role of various factors, some of which were included in the questionnaire. The responses were recorded on a five-point scale provided to the respondents to weight the relative importance of each factor. Weights were given to each factor according to the following pattern: weight 1 for the factor(s) that played an extremely important role in the out-migration of the respondent; weight 2 for the factor(s) playing a moderately important role; and weight 3 for factor(s) considered important but not having enough intensity to make substantial alteration in the decision to go abroad. Weights 4 and 5 have been given to the respondents in order not to eliminate the unimportant factors from the list.

FIGURE 21. Purposes of Going Abroad

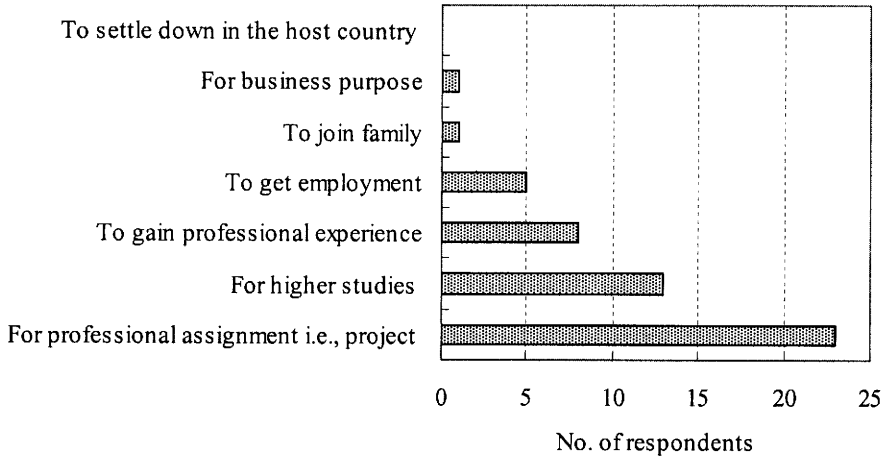


Figure 22 provides a list of nine factors along with their preference ranking in terms of weights given to each factor. The first three weights, as discussed above, were indicative of the "selection" response while the last two (weights 4 and 5) indicated the "rejection" response. "Votes" for answer '1', '2' or '3' were added up, without weighting them first.[8]

The figure shows that the largest number of respondents (38) expressed that the most important factor in their decision-making about going abroad was 'to gain experience that would later be highly valued in India'. Most of the respondents stated that since developed countries had an edge in technological advancement and were professionally more accomplished, they had decided to cross the border and expose themselves to qualitatively better experiences there. Thirty-four respondents stated to have been lured by 'better income prospects in the host country'. The third important pull factor for out-migration was 'better quality of life in the host country', as 32 of the respondents found it quite important in their decision for emigration. 'Better employment opportunities in the host country' was stated as the fourth important factor in the decision making for out migration. The other two pull factors, namely 'higher education' and 'expectations of better business opportunities in the host country' attracted 18 votes from the respondents and played a less significant role.

[8] Weighing the answers was tried on some questions, but it did not significantly alter the results.

FIGURE 22. Motivating Factors for Out-Migration of Return Migrants

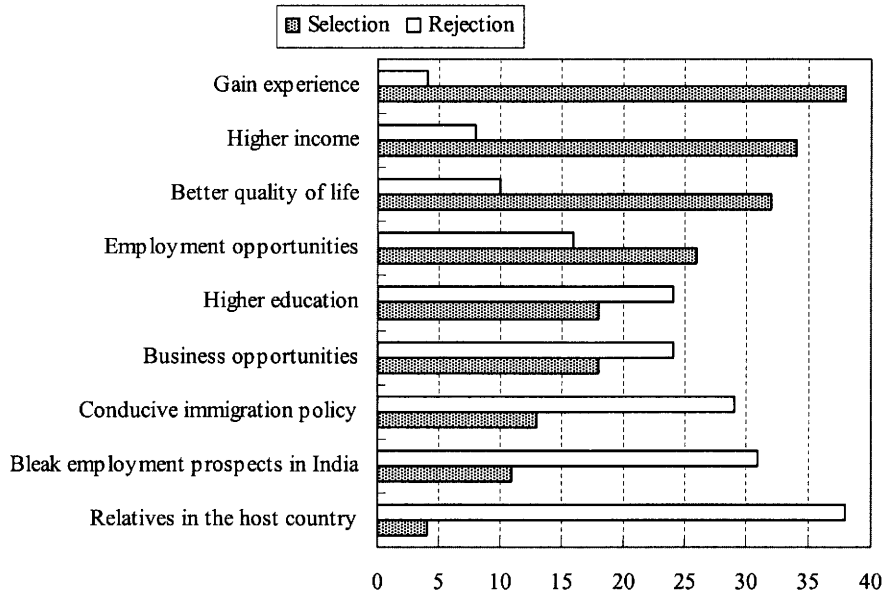


Table 11 presents the earnings of the respondent returnees when they were abroad. One of the major drawbacks of this earning profile was that it was based on the lump sum estimates of incomes as verbally revealed by the respondents themselves. Besides, this earning profile reflected the past emoluments, which the respondents were getting when they were working abroad. Therefore, to get a standard estimate of earnings abroad in the current period, these amounts needed to be adjusted by various rates of inflation. Despite these drawbacks, the earning profile shown in the table provides valuable information, which may be useful in analysing the sample from a comparative perspective. The table shows that one-third of the respondents had a total annual income between 40 thousand and 60 thousand USD, while 11 respondents were getting below 40 thousand USD per annum. Eight respondents reported their annual earnings in the host country between 60 thousand and 80 thousand USD, and 7 respondents were getting 80 thousand to 100 thousand USD per annum. Only one respondent reported that his total income during his stay abroad was more than hundred thousand USD per annum. Three respondents were unwilling to report their income to the investigators, but it was felt during their interviews that their income in the host country might have been very high. The average annual earning of 42 respondents came out to be 55 thousand USD.

TABLE 11. Earning Profile Overseas (in thousands of USD)

	0-20	20-40	40-60	60-80	80-100	100-120	No response
No. of respondents	4	7	15	8	7	1	3

Figure 23 depicts the role of catalytic agents that played a vital role in bringing the Indian expatriate professionals back home. It is apparent from the table that the respondents themselves have been the most important motivating agents of return migration, as 29 of them emphasised that they came back at their own initiative. The specific causes of their decision to come back is presented in the next figure (Figure 24). 'Family' was found as the second major motivational factor behind return migration of professionals. Nine respondents highlighted that it was their 'employers' who called them back. The roles of another two agents, 'friends' and 'relatives', were found to be only secondary and not decisive.

FIGURE 23. Return Migration of Professionals: the Catalytic Agents

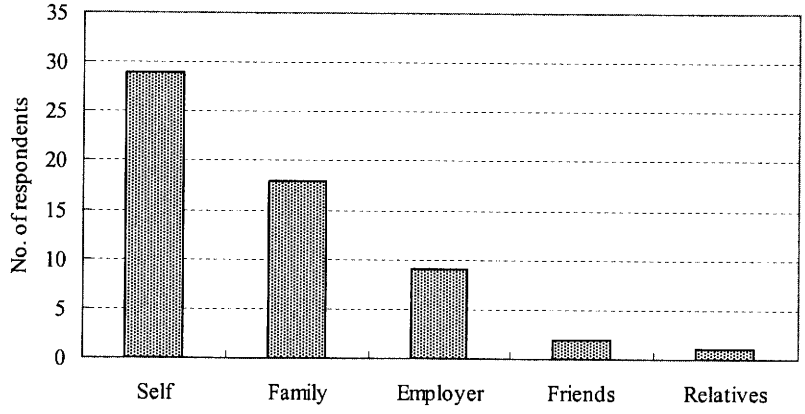


Figure 24 contains a list of twelve factors that motivated the respondents to come back to India. As before, weights 1 to 3 indicate that a factor was important, while weights 4 and 5 suggest that a factor was not an important motivation to return. The figure shows that 'family' has been the most important motivating factor in coming back, as 27 respondents gave it the first rank. One of the respondents, for example, explained that his parents were getting older and nobody was there to look after them in India, and so he did not have any other option but to come back. Just over half of the respondents identified the 'recognition of India as a major emerging IT power in the world' and the consequent increase in 'employment opportunities' in India, particularly in the IT sector, as the major motivators to come back. Eighteen respondents had decided to come back due to 'higher real earnings' in India. They were of the opinion that despite getting higher nominal wages abroad their real earnings were not so high, particularly because of the high cost of living abroad as compared to India. 'Expectations of better business and entrepreneurial opportunities in India as the home country' attracted one-third of the respondent returnees to India.

Besides these pull factors, several push factors were also mentioned by the respondents as the causes of their return migration. Nine responses indicated 'the fear of ethnic/racial problems in the host country' as a major push factor in their leaving the host country and return home. An equal number of respondents experienced 'negative attitude of the employer towards immigrant employees' though some of them did not directly confront such problems during their stay abroad. For most of them, it was the fear psychosis of discrimination that pushed them back towards their home country. Six

respondents returned due to the 'recession in the host country', and the consequent 'increase in unemployment in the host country' also discouraged six respondents from staying on abroad.

FIGURE 24. Motivating Factors in Return Migration to India

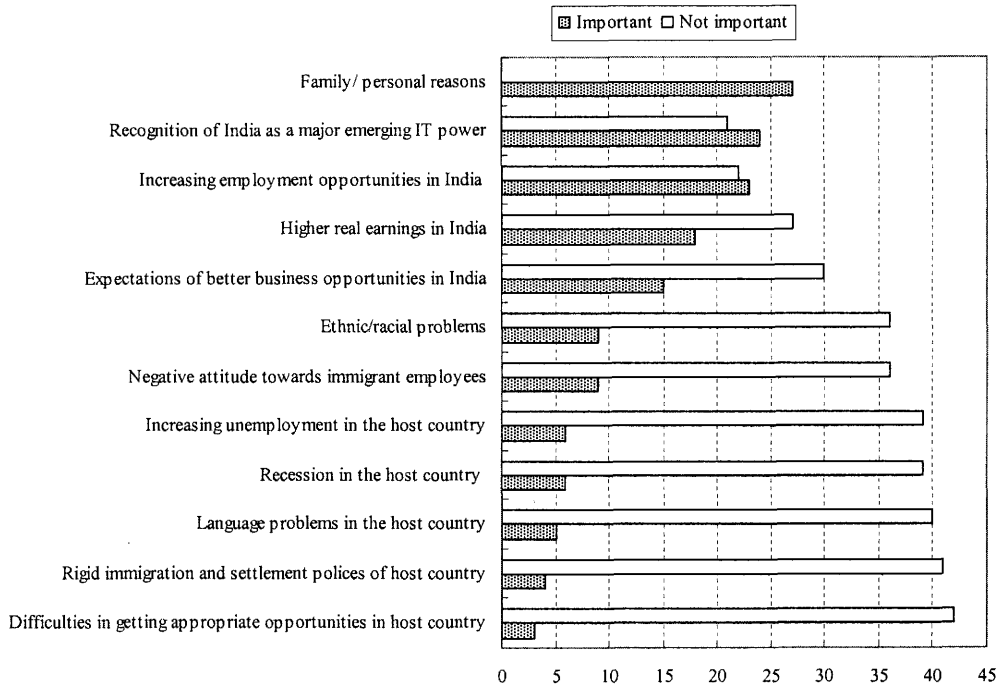
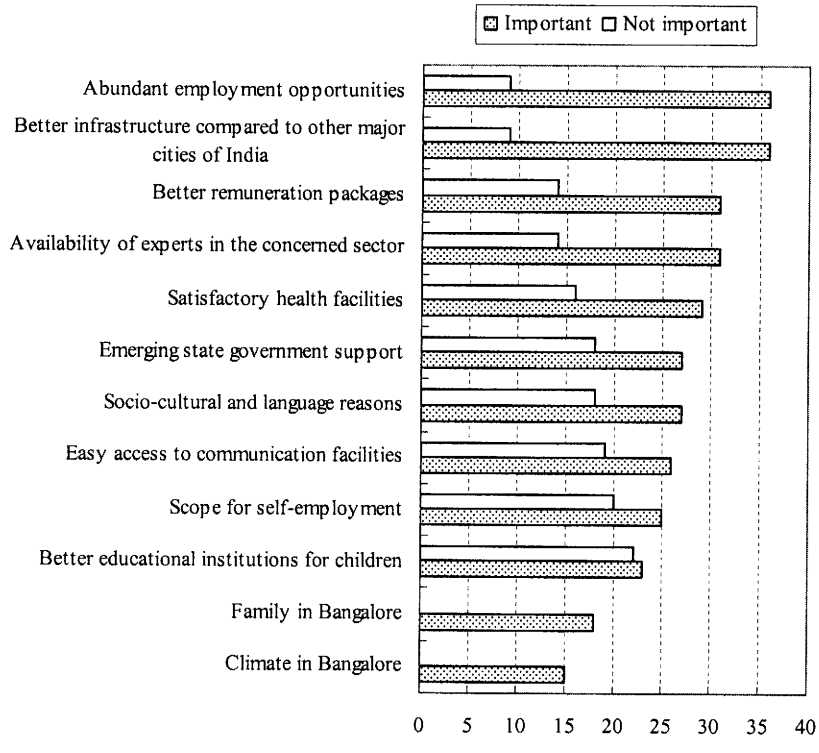


Figure 25 is an extension of figure 24, focusing on identifying the enticing factors in the return of migrants back to India, specifically to the city of Bangalore. It contains a list of 12 factors which played a crucial role in alluring return migrants towards Bangalore and making the city a 'corridor' for migration of IT and other professionals, both inward and outward. During the field survey, the respondents were asked to identify, select, and explain the significance of ten clearly stated options covering a wide range of important factors including political, economic, social, educational and health factors in their decision to select Bangalore. Besides the specified options, two other factors, namely 'family in Bangalore', and 'climate of Bangalore' were also identified during the interviews as important factors that attracted them to choose, for returning, the 'Silicon Valley of India'.

It is evident from the figure that 'abundant employment opportunities' in Bangalore, particularly in the IT sector, had lured a large proportion of the respondents to this 'cyber city' of India, for as many as 36 respondents in the sample had explicitly recognised the significance of this factor in their choice of Bangalore as the 'corridor' for their return from abroad. An equal number of respondents had stated that availability of 'better infrastructure in comparison to other major cities of India' like Delhi, Bombay, Hyderabad, Pune, etc. have lured them to Bangalore. 'Availability of experts in the concerned sector', *i.e.* the IT sector, was attributed importance by 31 respondents, as an attraction in Bangalore. Thirty-one respondents asserted that comparatively 'better

remuneration packages' were available in Bangalore, particularly in the IT sector, which was a very important incentive to returning workers. Twenty-nine respondents had identified the role of 'health facilities' as an important determinant in their selecting Bangalore as a destination for their return from abroad. Affinity to the local society, language and culture also played an extremely important role in attracting return migrants to Bangalore, as 27 respondents agreed that they had decided to stay in Bangalore because of its 'peace-loving' and 'multilingual' society, and of course a 'truly cosmopolitan culture'. Twenty-seven respondents recognised the 'emerging state government support' for newly emerging professions, like IT, as one of the important reasons to come back to Bangalore. 'Increasing scope for self-employment' in Bangalore was also cited by 25 of the respondents as an important motivation for return to Bangalore and start their own establishments.

FIGURE 25. Bangalore as a "Corridor" for Return Migration: the Enticing Factors



However, only a few of the respondents had actually started their self-employment programme. Twenty-six respondents mentioned the role of a well-built communication network and easy access to these facilities as an important factor. A little over half of the respondents had mentioned that availability of and access to a large number of qualitatively 'better educational institutions for their children', and Bangalore as a 'safe abode' for them and their coming generations also encouraged them to pursue their professional career in Bangalore. Eighteen respondents had decided to select Bangalore as their work place because of family reasons, as 21 respondents were born and brought up in Karnataka State itself. Bangalore, the capital city of the state, was therefore a

natural choice for these returning migrants. One-third of the respondents cited the 'climate of Bangalore' as an important deciding factor for the selection of Bangalore in returning back from abroad.

Table 12 provides the annual earnings profile of the respondent return migrants in Bangalore. It is evident from the figures in each cell that as we move on the earnings ladder, the frequency of respondents goes down substantially. Out of 45 respondents, only four had reported to be earning more than 21 000 USD per year. This may not seem much, but taking purchasing power into account raises this number to 108 000 PPP dollars. Five respondents had said that their annual earnings did not exceed 4 000 USD, or 22 000 when expressed in dollar PPPs. Twelve respondents reported their annual earnings between 4 000 and 8 000 USD per annum (22 000 - 43 000 in PPPs), followed by an equal number of respondents whose annual earnings were reported between 8 000 and 12 000 USD per annum (43 000 – 65 000 PPP). Eight respondents were found to earn between 12 000 and 21 000 USD per year (65 000 – 108 000 PPP). The average annual income of 41 respondents came out to be 11 000 USD per annum, 59 000 in PPPs. The remaining 4 respondents in the sample had refused to provide the estimates of their annual earnings.

TABLE 12. Earnings Profile of Return Migrants in Bangalore

Thousand rupees per annum	Thousand USD per annum	Thousand PPP per annum	Number of respondents
0-200	0-4	0-22	5
200-400	4-8	22-43	12
400-600	8-12	43-65	12
600-800	12-16	65-87	3
800-1000	16-21	87-108	5
1000-2000	21-25	108-130	1
1200-1400	25-29	130-151	1
1400-1600	29-33	151-173	1
1600-1800	33-37	173-195	0
1800-2000	37-41	195-216	1

When comparing return migrants' *current income* in Bangalore with their *earlier income* abroad, nineteen respondents had said their current annual income was 'much lower than before', followed by ten other respondents who said that it was 'lower than before'. Eight respondents did not perceive any significant difference between the two earning profiles. Contrary to this, seven respondents expressed that in Bangalore they were in a comparatively better financial position. One respondent did not give a reply to this question.

It was noted that a large number of respondents, while abroad, had not sent any significant amounts of money back home to their families residing in India. Out of the 45 returnees, 24 said that they had sent remittances to their families while they were working abroad, but not 'on a regular basis'. Most had sent intermittently and a few of them had sent money only once or twice during their entire period of stay abroad. The remittances were, nevertheless, spent by the family members in India on meeting the day-to-day expenses, except a few 'who spent on buildings, buying a house, and purchase of land, etc'. The amount of remittances was also not quite large, mainly

because a large number of return migrants had gone abroad for a short span of time and could not accumulate large amounts of money.

Table 13 provides an estimate of the foreign-earned money invested by returnees in Bangalore. The table shows that 12 returnees (one-fourth of the respondents) each invested below 10 000 USD[9], and another 10 invested between 10 000 and 20 000 USD each. The amounts of investment in Bangalore by another 8 respondents were between 20 000 and 30 000 USD each. Only 3 respondents invested more than 30 000 USD each. Further analysis of investment or expenditure by return migrants in Bangalore had revealed that 'housing' got the highest priority, as 25 respondents reported to have spent a major portion of their foreign earnings/savings in purchasing or construction of shelter. 'Durable consumption goods' including electronic appliances and furniture got the next major part of their investment/expenditure, as 20 respondents mentioned it. Fourteen respondents revealed that a major share of their earnings abroad was invested in the education of their own children or those of their direct family. For example, one of the respondents was bearing all the expenses of his younger brother's ongoing study in the Indian Institute of Technology in Mumbai (IITM). Five respondents had invested a huge proportion of their foreign earnings in business and three others in the stock market. It is to be noted here that almost all the respondents had invested or spent their money in more than one category of items.

TABLE 13. Investment of Foreign-Earned Money in Bangalore by Returnees

In 1000s of rupees	In 1000 USD	In 1000 PPP	Number of respondents
0 – 500	0 – 10	0 – 54	12
500 – 1 000	10 – 20	54 – 108	10
1 000 – 1 500	20 – 30	108 – 162	8
1 500 and above	30 and above	162 and above	3
	No response		12

While enquiring about the awareness of respondents regarding any incentive programme(s) or policies of central or state government(s) aimed at getting back to the country the Indian expatriate professionals abroad, *i.e.* NRIs (non-resident Indians) and PIOs (persons of Indian origin), only 11 respondents had responded positively. The remaining 34 respondents denied having any information, whether before returning to India or afterwards, about any state-sponsored incentive programme or policy to promote the return migration of IT professionals to India in general and to Bangalore in particular. Even from the 11 respondents, who were aware of the incentive programmes and policies, very few could actually get any help from these schemes in or after their return to Bangalore. The incentives, as mentioned by the respondents, were offered mostly in terms of the tax rebates, housing facilities and financial assistance in establishing business in Bangalore. It led to the conclusion that official efforts to get the nation's talent back (assuming that it would turn the brain drain into brain gain) have been neither sufficient nor satisfactory.

On the state of job-satisfaction in their present employment/business in Bangalore, 41 return migrants had responded positively, and almost all of them gave the same

[9] The conversion into USD (with exchange rates) probably gives a good estimate of the value of the savings, because this money was earned abroad. The conversion into PPP, on the other hand, gives a better idea what the investment is worth in India.

impression. Greater professional autonomy, world class institutional infrastructure, conducive working environment, a truly cosmopolitan culture of the city, and a large number of opportunities for career advancement have been enumerated as some of the most important factors in keeping their morale high in the present professional set-up in Bangalore. The remaining four respondents, who reacted negatively on the job-satisfaction in their present employment, cited bureaucratic hassles in getting the work done as the most prevalent problem in Bangalore. Besides, quite a few had expressed that 'dignity of labour' was not upheld in India, unlike in most developed countries. There was lack of professional ethics and healthy practices amongst people.
When asked about the difficulties and problems in adjusting to the present working conditions in Bangalore, as many as 32 respondents had explicitly expressed that they did not face any major hurdle in adjusting to their present work organisation climate. The background of respondents and their earlier exposure to India and its culture had helped them a lot in adjusting back in Bangalore after their return from abroad. However, 13 respondents mentioned some problems in their re-adjustment in Bangalore. The major adjustment problems faced by them were caused due to the lethargic administrative procedures, inefficient handling of the day-to-day professional concerns, relatively unhealthy business ethics, poor research facilities (especially for those in academics) and poor work culture.

Twenty-five respondents had revealed that they had tried to motivate their friends and colleagues and some relatives as well to return to India. However, not all of them were successful in this endeavour. Generation of a fairly large number of good employment opportunities, and many more lucrative opportunities for self-employment, especially in India's IT sector, a sense of feeling at home consequent to a socially comfortable and easy life – were the inducements that were cited by these respondents to their friends and colleagues abroad.

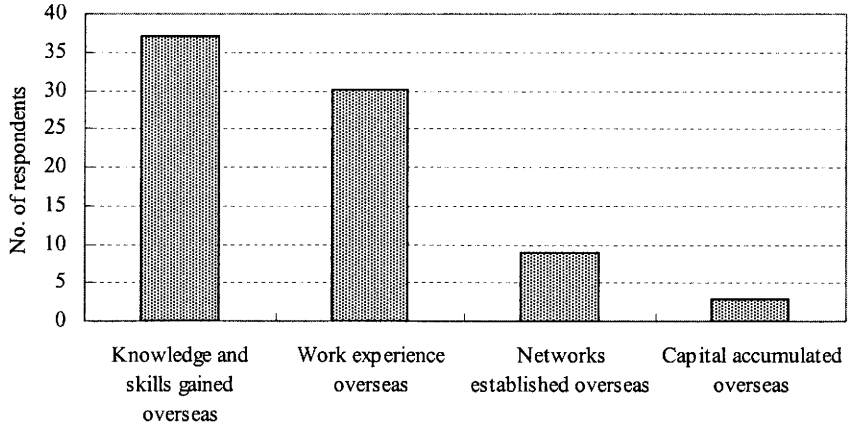
For analysing the impact of return migration in Bangalore, the respondents were asked to react on the role of returnees in certain areas of development, *e.g.* in the economic domain, particularly in terms of remittances and prospective economic avenues in Bangalore, knowledge and skills gained overseas and their implications back home, development of physical infrastructure in India including Bangalore, development of education and other social services, etc.

When reacting to the question, 'which of the following do you consider the most important to your current work/business in Bangalore', thirty-seven respondents mentioned that the 'knowledge and skills gained overseas through higher education and on-the-job training' was highly useful for their current jobs in Bangalore (see figure 26). Two-thirds of the respondents expressed that the opportunity to work abroad helped them equip themselves with the recent and most appropriate technologies. Only nine respondents recognised any 'role of professional networks established overseas' in their current jobs in Bangalore. They asserted that these networks helped them in providing information on several professional issues like technology, management, outsourcing, etc. Only 3 respondents recognised the importance of '(financial) capital accumulated overseas' in their current occupation in Bangalore. Interestingly, these three respondents had not stayed abroad for a very long time. Rather, it was the nature of their job and the remuneration packages overseas that helped them in earning huge sums of money in a comparatively short spans of time.

All the respondents except one acknowledged the 'contribution of skills, experience, knowledge, and ideas' which they had gained while working abroad, in their present

employment/business in Bangalore. A majority of them had elaborated that their experience helped them a lot while interacting with the clients, for most of the clients were from the United States and European countries. It helped them in acquiring technological innovations and coping with the rapid technological changes, improving management practices, and above all, confidence building. Respondents from the academic world considered that it was the exposure to different work cultures and a sound academic base, which was of paramount importance and very useful in their current positions. As an exception to this, one respondent, a returned civil engineer from Malaysia, uttered in despair that "in no way the knowledge, skills and experience gained there helped me in my present position, because all that I do here is completely different from the nature of the job and work culture over there". He revealed that due to the economic downturn he had lost his job in the host country and as a consequence came back to India, where he could not utilise his experience because of his failure in getting a good job in the concerned field. In his present occupation in Bangalore, he however expressed satisfaction, particularly because of increasing income prospects in the future. This apart, almost all the respondents were of the view that their experiences abroad were well recognised and valued by their employers and by colleagues as well. They received more attention from their superiors and colleagues, who 'listen to them carefully on important matters'. Additionally, employers and colleagues did not hesitate in assigning them important professional responsibilities.

FIGURE 26. Gains From Return Migration



Note: The frequencies add up to more than the number of respondents because some respondents chose more than one variable of motivation.

3. *Qualitative Observations by the Respondents*

When the respondents were asked to speak on the "positive and negative feelings" after coming back home to India, all of them expressed that positive feelings substantially outweighed the negatives. 'Physical proximity to the family as well as to the nation' and an independent environment were reported as the most important positive feelings. Several of them expressed their satisfaction on the development of Bangalore as a

cosmopolitan city with an increasing number of employment opportunities in almost every emerging field. Quite a few of them expressed that while working abroad they sometimes felt a sense of alienation from the surrounding society and its closed cultural facets, sometimes leading even to racial diatribes. Having been back home, they ceased to feel alienated from the people around them. Rather, they started feeling themselves as essential parts of a progressive Indian social system. Some of them felt that the climate of Bangalore was very pleasant and they liked it very much. So, for them, being in Bangalore was in itself a positive aspect of their return to India. Furthermore, the emergence of Bangalore as the 'Silicon Valley of India' made them feel proud about it and to become a part of it.

On the negative aspects of their life in Bangalore, the respondents were unhappy about the government's apathy and delay in reacting to the issues, concerns and developments taking place in the global economic scenario and its failure in controlling corruption, particularly in public offices. A heavy load of growing vehicular traffic, the disastrous state of pollution, especially in the metropolitan cities, Bangalore being no exception, nearly uncontrolled population growth and a poor state of infrastructure were stated as the major causes of their pessimism. Twenty-two percent of the respondents, however, still believed that since these types of problems were in any case not going to be removed altogether in the near future, they saw no reason to feel entirely pessimistic about returning to the home country on such grounds.

Thirty-five returnees expressed their desire to re-emigrate, but only if they got a very lucrative job offer from overseas. Since a major part of the sample was formed by professionals who went overseas on their employers' initiative, they expressed that they would certainly take a foreign trip if the employing authority, *i.e.* the companies, made the arrangements again. Amongst the choices of preferred destinations for foreign working trips, the United States came out as the most preferred choice, followed by the United Kingdom and Australia. Other European countries, namely France and Germany, were also mentioned among the list of preferred destination countries. Canada and Singapore were also listed high in the preference list, though by only a few respondents.

Thirty-nine respondents stated confidently that they would not settle down abroad permanently. It was pointed out by most of these respondents that since they were getting world-class facilities at their work place in Bangalore, enjoying the healthy environment of the city, and were very optimistic about India's place in the future world, they saw no point in leaving the home ground for permanent settlement elsewhere. To them it is an added advantage to be in close proximity of their families and that too in their own country. Two respondents expressed the view that if they got a favourable opportunity, they might think about emigrating permanently. Four respondents expressed their inability to say anything with confidence on their decision to go abroad for permanent settlement and left everything to the circumstances both at home and overseas.

When the respondents were asked about their 'active involvement in the development process' of India, more than half (25 out of 45 returnees) responded positively. A majority of them felt that 'relevant education' was absolutely necessary for the development of society. Furthermore, to make education accessible to the masses, educational infrastructure needed to be built by providing adequate funds. An opinion was also voiced to emphasize that besides governmental efforts, private hands also had an important role to play in this nation-building endeavour. They urged that people should contribute generously for the uplifting of the masses. These respondents reported

that they were contributing to the societal cause through several organisations and NGOs working on environmental issues, education of poor children and other social services.

V. RETURN MIGRATION AS AN EMERGING POLICY PANACEA AND ITS IMPLICATIONS FOR THE THREE STAKEHOLDERS: Migrants, the Host-country and the Home-country

The above case study may be seen in the context of the shifting paradigms of international migration of the highly skilled labour globally in recent times, particularly with internationalisation of production, trade and finance through the whole of 1990s and in the initial few years of the 21st century. Obviously, one of the paradigm shifts has been in terms of the bandwagon expectation of a fantasized "return migration" of expatriate "knowledge workers" home as a panacea for brain drain.[10] The return migration of the highly skilled to home countries like India is perceived to be an outcome of the change in emphasis from permanent migration to two kinds of inter-related phenomena worldwide, particularly in the developed-country immigration policies: temporary migration, and circulatory migration. This has taken place in the wake of a growing predominance of a "worker-seeking" (e.g., demand for generic high-skill IT professionals) mode of production, trade and finance initiated by the multinational corporations and subsequently adopted by the developed host countries themselves. As a determinant of international migration, this mode has overtaken the "work-seeking" mode of production, trade and finance that offered overseas employment, in the three decades preceding the 1990s, to developing-country nationals, who *supplied* their specialised skills to the developed-country based world labour market, and thereby contributed to the phenomenon of brain drain. The worker-seeking mode has meant higher turnover of internationally mobile knowledge workers who are endowed with more generic human capital, mainly as teachers, trainers, researchers, innovators, and also as students in frontier areas of knowledge, like IT, biotechnology and so on, for future build-up of knowledge societies in the developed countries. Consequently, knowledge-creation (through involvement of the expert professionals and students in research and learning) has become the frontier activity, followed by widespread marketing (leading to trade through mutlilateral negotiations involving the intellectual property rights (IPRs) or the general agreement on trade in services (GATS) under the WTO, rather than free application, of created knowledge across the world. At the same time, "outsourcing" of the services of the not-so-highly skilled has led to international immobility of the "service workers", through, for example, mushroom growth of activities like call-centres, medical transcription, back-office operations, pay-slip accounting, off-shore software development, etc. in the developing countries, manned by what is being termed as the "techno-coolies".

In a restricted global environment of international trade and foreign investment where movement of work across national borders was limited, the focus on permanent

[10] I have elsewhere identified and commented upon at least three types of paradigm shifts that are currently taking place in the context of high-skill labour mobility from India (Khadria 2001a - 2001e). Two of these shifts are, first, in terms of the *enlarged application domain of the generic skills* of professionals, and 'semi-finished' human capital in the form of younger students, in increasing number of developed receiving countries, and second, in terms of the *replacement of the policy objective* of human-development-led 'welfare' by that of human-development-led 'growth'.

migration of workers was both understandable and relevant. But in a liberalised or liberalising world economic scenario, particularly in the wake of globalisation represented by GATS under the WTO, cross-national movement of temporary migrants (in US-INS terminology, the 'nonimmigrants') seem to have assumed a heightened and crucial importance. In fact, such migration has already been termed as having taken place through 'bodyshopping'. Whereas the US trade policy makers are suspicious about providing for entry of large number of temporary workers and have often taken refuse in the argument that migration is the area of Immigration and Naturalisation Service under Department of Justice, and therefore outside their jurisdiction, India has aired the criticism that such attitude is counterpoised to the very idea of liberalisation and globalisation. The fact of the matter is that it is still a grey area as far as the impact of temporary immigration of workers on the labour market is concerned.

A. Issues and Implications

It is being thought that this shifting paradigm, leading to the emergence of 'circulatory migration' (as a kind of return migration), in place of permanent migration, of knowledge workers poses an antidote to the so-called brain 'drain'. It is in view of this, that a number of issues may be raised in terms of research questions: Who are these continuously mobile knowledge workers of the new era if not the same as not-so-frequently mobile qualified professionals of the previous era? Where does 'temporary', 'circulatory', or 'return migration' leave the developing country migrants and the countries themselves? Are they better off with temporary/circulatory migration vis-à-vis one-shot emigration of permanent nature? What has added to the volume of circulatory migration? What is in the interest of the receiving developed countries that promote circulatory migration?

It may not be possible to immediately answer all the questions that one could raise in this context, nor is it necessary to address all of them separately or exclusively. However, let us first try to understand who these highly mobile knowledge workers are and how they are different from the 'brain drainees' of the earlier period. Going by the 1960 definition by Peter Drucker, "The knowledge workers are those who have successfully educated and or trained to reach the higher levels of proficiency in some or other branch of knowledge." He found the term being widely used for describing the people with considerable theoretical knowledge and learning: doctors, lawyers, teachers, accountants, chemical engineers, etc. This started changing very rapidly, from 2002 onwards, with the most striking growth being in knowledge technologists: computer technicians, software engineers, analysts, and the whole genre of IT professionals. The difference of these new knowledge workers with the traditional ones is that these knowledge workers are more generic (with multiple application fields) whereas the traditional knowledge workers are more specific (with specific application field).[11]

In trying to understand 'what is circulatory migration?', the interests of at least two of the three stakeholders need to be underlined: From the point of view of the individual migrant, it implies continuous movement between countries (could be from one host-country to another, but primarily between the host- and the home- country), whereas from the point of view of receiving-country society, it implies rapid and high

[11] This has a correspondence with the general vs. specific skill classification provided by Gary Becker in the early 1960s.

turnover of immigrants. While the first one has been emphasized as a boon or ray of hope for the third stakeholder, the sending developing country or countries, what remains "hidden" is the stake and role of the developed receiving countries in dealing with the high turnover of knowledge workers through circulatory migration. The important questions are 'why circulatory migration is replacing permanent migration?' and 'whether it is the result of the individuals freely deciding to become more "nomadic"?' or ' whether the system is forcing them to do so?' To my mind, it is the result of a unique kind of "forced migration" where no particular migrant is encouraged or allowed to stay in the host country for long, *a la* "temporary migration" under the trade in services of the WTO regime. For the receiving country, this serves two not-so-obvious but important purposes: (i) 'safety valve for migration' (e.g., state responsibility of protecting the foreigners stands reduced because given immigrant individuals are not available continuously for long to build up resistance groups against the native chauvinistic groups and/or the discriminating employees/governments), and (ii) easy and cheaper 'labour population replacement' in terms of deriving three possible advantages: (a) Age - by replacing older with younger people (to help correct the aging demographic structure), (b) Wage - by replacing higher-pay-packet-drawing experienced people with lower-pay-packet-receiving fresh entrants (to keep the overall wages-bill or labour-cost low), and (c) Vintage - replacing older vintage workers with newer vintage ones (to get a hold over newer technologies). Given these, it may be conjectured that the decision-making on the demand-side of circulatory migration is still highly controlled by the developed receiving countries, although it is made to look as if liberalization has taken place for immigration because of internationalisation of production, trade, and finance.

B. Examples and Perceptions

Where does it leave the developing countries like India? Are they better off - as far as the large-scale emigration of their knowledge workers is concerned? One implication that could be thought of is that as circulatory migration gradually replaces permanent migration in terms of prevalence, Diaspora Networks that are considered as a potential institution for interaction of the expatriate workers with their home countries would also die a premature death. On the other hand, it may also be argued that the phenomenon of 'physical presence' of *permanently formed settlements of temporary/circulating* foreign knowledge workers in the form of *Scientific Diasporas* would grow in importance as a determinant of migration of knowledge workers, although each individual immigrant would cease to matter much as turnover becomes high and rapid. This would happen if the foreign worker component in the labour market grows in size - leading in turn to growth in the number and size of the Diaspora Networks. As a result, the individual migrant would become less and less important in any given diaspora, but networks would emerge and replace individual migrants as the sustainable entities. One could argue that this would be the result of a unique kind of "forced migration" where no particular migrant is encouraged or allowed to stay in the host country continuously for long periods - *a la* 'temporary migration under GATS of the WTO regime'.

Return migration of Indian knowledge workers has, however, shown signs of taking place in the last one year for another reason. Indian industry's perception about migration of skilled professionals from India has thithered under the experience of American recession in the IT industry. The industry, which has already shown signs of

taking its own toll in terms of freeze on fresh recruitment on the one hand, and layoff of the old on the other, has precipitated the return of many US-based IT professionals back to India.[12] Western European countries in the EU, including the UK are also following suit with a lag, whereas East/South East Asia is being looked at as an emerging destination for the migrant knowledge workers. One has to be, however, cautious and remember about these destinations as sources, also of the 'derived demand' (originating in the US) for highly qualified manpower from India, because these countries themselves are facing their own problems of brain drain to the United States. If so, the derived demand will also tend to dry up when the brain drain to the USA slows down globally.[13] Industry is also speculating on the possibility of reverse or return migration of the Indian IT professionals to India for working in companies that are being outsourced/would be outsourced by the developed-country-based MNCs for software development. There is, however, a great deal of uncertainty on this issue as various US lobbies are involved in the business process outsourcing (BPO) issues. In this broad contextual background, which one may like relating to the emerging map of the future "knowledge society" drawn by Peter Drucker recently (Drucker 2001), the Indian case presents an anti-thesis to the hype that has been created by the so-called 'circulatory migration' as an antidote to permanent migration, and thereby an opportunity for developing countries to turn their brain drain into brain gain.

C. The Perceived Impact of the Paradigm Shifts in India

Now, in an attempt to better understand the phenomenon that is undergoing change from specifics to generics at many levels, one can decipher another shift in impact to be taking place. One is a shift away from what I would call the 'Ex-post Decision Domain', and towards 'Ex-ante Decision Domain' - of the prospective migrant. The latter prompts the potential/prospective migrant to follow the dictate (or signal) of the world labour market (rather than the domestic labour market and/or the traditional 'advice of the elders') while taking a decision on the choice of a subject for studies.[14] In other words, choice of educational stream, e.g. in favour of IT disciplines takes place in anticipation of the brain drain possibility rather than having to accept it by default when emigration provided the 'safety-valve' against acute unemployment in the domestic labour market. On the technology front, the Indian software industry employed some 160,000 skilled people in 1996-97. This went up to 340,000 in 1999-2000 and was projected to be around 500 thousand in the following year. India produces about 70,000 to 85,000 software engineers, and about 45,000 other IT graduates. All this determines the nation's capability to undertake research and to facilitate international transfer of technology to India. According to industry projections, the demand would rise ten-fold in the next

---

[12] Although many in the pipeline of migration have cancelled or put on hold their plans to go, there are however reports that there is no slowing down in the issuing of H-1B visas by the US Consulate-General at Chennai in South India (*The Economic Times*, 'No slump in issue of H1B in Chennai', May 3, 2001, New Delhi).

[13] United Kingdom itself sends large number of immigrants and temporary visitors to the United States, including doctors, teachers and IT professionals.

[14] This is being observed in Delhi and other places where seats in science streams at colleges are going vacant for the last three years or so whereas there is rush for computer and commerce streams. Students choose these streams right after class X in schools.

seven years, and India would need about 2.2 million IT graduates by 2008 (NASSCOM, 1999). To this may be added the overseas demand of 0.8 million by the recent announcements from the United States, Germany, and the UK only. Against these figures, India's present combined enrollment in all streams (i.e., science, arts, commerce, engineering, medicine etc.) and subjects (e.g., physics, chemistry, information technology in science and engineering) at the tertiary level of education is about 375,000 per year (IAMR 2000). Besides increasing the intake over the years, there seems to be no tangible plan available with the Government of India for meeting the increasing demand for IT professionals. The Indian Institutes of Technology (IITs) are also under pressure to increase intake, but do not have the necessary infrastructure back up for it. New institutions like the Indian Institutes of Information Technology (IIITs) have just started. There will be a major shortage of high-quality technology professionals, e.g., the IIT type of graduates who can work on innovative software technologies.

D. Targets and Policy

Given the above emerging scenario, one can take the international political economy as a datum, and argue for an endogenous solution of building up the average productivity of labour at home through the diaspora-option to the brain drain rather than an exogenous solution of return migration or circulatory migration. I have argued elsewhere for concentrating on a single generic long-term policy intervention - targeted in the limited fields of education and health infrastructure development only rather than a multitude of development or sectoral welfare targets (Khadria 1999a, 2001a, 2001b).[15]

India has no well defined rules or laws for controlling or monitoring high-skill emigration. There is an Emigration Act of 1983, which regulates emigration of workers from India to foreign countries, but these are meant for categories of workers who are mostly unskilled and uneducated. Perhaps, the neglect of high-skill emigration in policy has been because of the perception, as the Kothari Commission (GOI, 1966, section 198 on 'Brain drain') had observed, that "not all who go out of India are necessarily first-rate scientists, nor are they of critical importance to the country's requirements." What perhaps skipped the attention of the policy makers was the qualification that Kothari Commission (1964-66) had added to its observation, saying, "But the problem is of sufficient importance to merit a close and systematic study" (GOI, 1966). However, policy steps, if not real policy measures, that have been adopted from time to time to deal with brain drain, or the emigration of high-skill labour from India, can be divided into four broad types: Restrictive, Compensatory, Restorative, and Developmental. India has experimented with almost all of them at various points in time, it can be said.

VI. CONCLUDING REMARKS

The findings of both case studies cited extensively in this paper show that young IT professionals as well as the medical professionals want to go abroad mainly to gain professional experience, which they think will be highly valued in India when they come back. In addition, they are all encouraged by higher earnings, perks and high quality of

[15] It is beyond the cope of this paper to go into the details of these propositions.

life in the host country. However, unlike the IT professionals as well as most doctors, the majority of prospective nurses want to settle down abroad permanently because they hardly perceive their career prospects to be bright in India. Amongst the doctors, only some are prepared to settle down abroad permanently if they get a chance. The fact that none of the respondent professionals in Bangalore gave priority to the idea of settling down abroad highlights a unique aspect behind Bangalore becoming a "corridor" for migration (outward and inward) of Indian HRST, which is not the case with Delhi. The IT professionals in Bangalore feel that they have growing opportunities for their career growth in India in general and Bangalore in particular. The other interviewed professionals (such as academics) in Bangalore also found themselves comfortable in the cosmopolitan city of Bangalore, though they believe Delhi has better career prospects in academics.

Bangalore, the 'Silicon Valley of India' as it is referred to, has lately acquired an important role in promoting the out and in-migration of professionals including IT professionals and others from different fields like teaching, management, medical, and architecture, etc. During the IT-boom of the late 1990s and the beginning of 21st century, Bangalore has been recognised as a happening place for the development of other economic activities. For example, during the Bangalore field-survey, some architects said they had gained in terms of higher wage-rates triggered by the IT-boom in Bangalore. Similarly, In the case of medical professionals, a Commission on Graduates of Foreign Nursing Schools (CGFNS) Test Centre was opened in September 2001 in Bangalore. This initiative had been taken to better coordinate the out-migration of nurses.[16] Already, four rounds of tests have been held for the selection of nurses for out-migration, the last one being scheduled on 12 March 2003. In each round as many as 1 500 nurses appeared for the examination. Estimates show that there is a shortage of 100 thousand nursing personnel in US hospitals and this shortage has been projected to quadruple in the next few years.

After the wave of migration of doctors, IT personnel and nurses from India, the latest turn is of teachers. Newspapers show significant advertisements at regular intervals for the positions of teachers for countries like the United States, the United Kingdom, New Zealand, Australia, etc. An organisation called "Recruiting New Teachers (RNT)" says that over the next 10 years the United States would need to hire two million teachers, because half of their teachers would retire during this period. These countries prefer Indian teachers because of the perception that Indians have good fluency in English and have received quality higher education.

The erstwhile perception of compensating India for the brain drain in a *quid pro quo* basis has thus become subdued over the last two years, particularly because it is thought that geographical boundaries are no longer effective barriers to migration of skill as the output of a knowledge worker is in any case considered transferable across borders through the ICT (Information and Communications Technology).[17] Given this context, the move towards generics in Indian skill migration abroad may be understood as follows: The near universal applicability of IT skills has made IT specialists the most wanted form of skilled labour from India, and these are being lured from India in all possible forms: (a) as fully trained and educated professionals, (b) as students, their

[16] See, *The Hindustan Times*, 16 Feb., 2003.

[17] Aneesh, 2000; See also, 'Indian IT workers flooding UK', by Sanjay Suri in London, *The Hindustan Times*, New Delhi, 1 May 2001.

potential skills to be given the finishing touches in the developed host country[18], and (c) as students enrolled in offshore universities of the developed countries located in the students' home countries, to acquire education and training suitable to the labour markets of the immigration country - like history repeating itself in what had happened in the case of the IITs established through aid from the US and European countries in the nineteen sixties, but now directly through their own institutions and on a much varied scale in the twenty-first century![19]

REFERENCES

AIU. *AIU Status Report*, Association of Indian Universities, New Delhi, 2000.

Aneesh, A. "Rethinking Migration: High-Skilled Labour Flows from India to the United States." Center for Comparative Immigration Studies (CCIS), Working Paper No. 18, La Jolla, University. of California-San Diego, 2000.

Auriol, L. and J. Sexton. "Human Resources in Science and Technology: Measurement Issues and International Mobility," in OECD, *International Mobility of the Highly Skilled*, Paris, 2001.

CSO (Central Statistical Organisation). *Annual Survey of Industries: Provisional Results for the Factory Sector 1997-98*, CSO, Industrial Statistics Wing, Department of Statistics and Programme Implementation, Ministry of Planning and Programme Implementation, Government of India, Calcutta, 1999.

DST. *Pilot Study on Magnitude and Nature of the Brain Drain of Graduates of the Indian Institute of Technology (IIT), Bombay* (now Mumbai), Project by S. P. Sukhatme and I. Mahadevan, DST, Government of India, New Delhi, 1987.

DST. *Data Base for Brain Drain: Institution-based Study – IIT, Madras*, Project by M. S. Ananth, K. Ganesh Babu and R. Natarajan, DST, Government of India, New Delhi, 1989.

DST. *Pilot Study to Evaluate the Phenomenon of Brain Drain among the Graduates of AllIndia Institute of Medical Sciences, New Delhi*, Project by V. Kalra, Brian D'Monte, K. Ramachandran and K. R. Sundaram, DST, Government of India, New Delhi, 1992.

DST. *A Study on Brain Drain and Career Profile of IIT Delhi Graduates*, Project by S. G. Deshmukh, K. Ravi Raju and P. N. Rao, DST, Government of India, New Delhi, 1997a.

DST. *Research and Development Statistics 1994-95*, Ministry of Science and Technology, DST, Government of India, New Delhi, 1997b.

DST. *Research and Development in Industry 1996-97*, Ministry of Science and Technology, DST, Government of India, New Delhi, 1999a.

[18] There could be a valuable and interesting research on an entirely new aspect of remittances - on its repatriation (or rather re-repatriation) to the developed host country from India in the form of overseas student fees that an increasingly larger emigrating student clientele of the Indian genre is liable to pay today. Towards this, an assessment of the per capita student fee and the per capita remittances by emigrants would be a very telling index of this particular category of loss-gain from the brain drain.

[19] See Khadria 2001b.

DST. *Research and Development Statistics 1996-97*, Ministry of Science and Technology, DST, Government of India, New Delhi, 1999b.

DST. *Research and Development Statistics 2000-01*, Ministry of Science and Technology, DST, Government of India, New Delhi, 2002.

Economic Times. "India has no clear immigration rules." *The Economic Times*, Jan. 26, 2003, p.15 on 'The Global Indian', and various other issues.

GOI (Government of India). *Education and National Development*, Report of the Education Commission (under the Chairmanship of D. S. Kothari) (1964-66), Government of India, New Delhi, 1966.

GOI. *Census of India 1991, Part III B - B Series, Economic Tables, Vol.-11*, India, States and Union Territories, Registrar General and Census Commissioner, India, 1995.

GOI. *Indian Students/Trainees Going Abroad 1996-97*, Ministry of Human Resource Development, Government of India, New Delhi, 1998.

GOI. *The Gazette of India, Regd. No.D.L.33004/98, Extraordinary, No.63: PIO Card Scheme*, New Delhi, March 30, 1999.

GOI. *Indian Labour Statistics 1997*, Ministry of Labour, Labour Bureau, Government of India, Shimla, 2000a.

GOI. *Indian Labour Yearbook 1998*, Government of India, Ministry of Labour, abour Bureau, Shimla/Chandigarh, 2000b.

GOI. *Selected Educational Statistics: 1999-2000*, Ministry of Human Resource evelopment, Government of India, New Delhi, 2001.

GOI. *Report of the Special Group on Targeting Ten Million Employment pportunities Per Year Over the Tenth Plan Period*, Planning Commission, Government of India, New Delhi, 2002.

Hindustan Times. Report on Prime Minister's Inaugural Speech at the Indian Science Congress in Bangalore, *Hindustan Times*, 16 Feb. 2003 (and various other issues), New Delhi.

ICWA (Indian Council of World Affairs). *Report of the High Level Committee on the Indian Diaspora*, Indian Council of World Affairs, New Delhi, 2001.

IMD (Institute of Management Development). *World Competitiveness Yearbook* (Various Tables), Institute of Management Development, Lausanne, 2000.

INC (Indian Nursing Council). Total Number of Nursing Educational Institutions, Total Number of Candidates Admitted in Different Nursing Courses and Total Number of Qualified/Registered Nursing Personnel All Over India (Unpublished data), Indian Nursing Council, New Delhi, 2001.

INS (Immigration and Naturalization Service). *Statistical Yearbook of the INS 1996*, Department of Justice, Immigration and Naturalization Service, Washington, D.C., 1997.

Khadria, Binod. "The Subsidies Question in Higher Education - Tight-Rope Walking for Public Policy Makers in Developing Countries." *Journal of Educational Planning and Administration*, Jan. & April 1989, vol. 3, pp. 43-59.

Khadria, Binod. "Contemporary Indian Immigration to the United States - Is the Brain Drain Over?" *Revue Européenne Des Migrations Internationales*, 1991, vol. 7, no. 1, pp. 65-96, Poitiers, France.

Khadria, Binod. "Brain Drain or Brain Bank? Aspects of Professional Indian Immigration to USA." paper presented at International Conference on Indian Diaspora (ICID), organised by the University Grants Commission (UGC) of India and the Rajiv andhi Foundation (RGF), at the University of Hyderabad, Hyderabad, November 1-2,mimeo, 1994.

Khadria, Binod. *The Migration of knowledge Workers: Second Generation Effects of India's Brain-Drain*, Sage Publications, New Delhi, 1999a.

Khadria, Binod. "Tertiary Education as A Knowledge-Generating Service Industry, and Migration of Knowledge Workers as A Means of Countering the Imbalances of Poverty and Power." *The Fifth Biennial Oxford International Conference on Education and Development: Poverty, Power and Partnerships*, 9th-13th Sept. 1999b, Oxford.

Khadria, Binod. "Shifting Paradigm of Globalization: The Twenty-first Century Transition towards Generics in Skilled Migration from India." *International Migration*, Special Issue: International Migration of the Highly Skilled, 2001a, vol. 39, No. 5, pp. 45-71.

Khadria, Binod. "Tracing the Historical Geneses of 'Brain Drain' in Indian Polity, State Policy and Civil Society." Paper presented at the *Conference on Citizenship and Those Who Leave - The Politics of Emigration and Expatriation*, organised at Centre de Recherches Historiques, E.H.E.S.S. - C.N.R.S., Paris, 6-8 Dec. 2001 (Forthcoming in an edited volume from University of Paris V), 2001b.

Khadria, Binod. "Offshore Universities and the Paradox of Factor-Endowment and Factor-Use in Trade-in-Services." paper presented at the *Sixth Biennial Oxford International Conference on Education and Development: Knowledge, Values and Policy*, 19-21 Sept. 2001, Oxford, 2001c.

Khadria, Binod. "Skilled Labour Migration from Developing Countries: Study on India." *International Migration Papers*, 2002, 49, International Labour Office, Geneva.

Khadria, Binod. "Case Study of the Indian Scientific Diaspora," in R Barre, V. Hernandez, Jean-Baptiste Meyer, and D. Vinck, eds., *Scientific Diasporas: How can developing countries benefit from their expatriate scientists and engineers?,* published by Institut de Reserche pour le Developpment (IRD), Paris, 2003.

Khadria, Binod. "Human Resources in Science and Technology in India and the International Mobility of Highly Skilled Indians." OECD Working Paper, Forthcoming, Paris, 2004a.

Khadria, Binod. "Migration of Highly Skilled Indians: Two Case Studies." OECD Working Paper, Forthcoming, Paris, 2004b.

Majumdar, T. "Education: Uneven Progress, Difficult Choices," in H. Karlekar (ed.), *Independent India: The First Fifty Years*, Delhi, Oxford University Press, 2004b.

MCI (Medical Council of India). *Number of Doctors Possessing Recognised Medical Qualification (under IMC Act) and Registered with State Medical Councils from the Years 1986 to 2002* (Unpublished Data), Medical Council of India, New Delhi, 2002.

NASSCOM (National Association of Software and Service Companies). *Indian Software Directory, 1995-96,* New Delhi, 1995.

NASSCOM. *NASSCOM-McKinsey Report*, National Association of Software and Service Companies, New Delhi, 1999.

NASSCOM. *Strategic Review 2002, Chapter 5: 'Knowledge Professional'*, National Association of Software and Service Companies, New Delhi, pp. 63-82, 2002.

NSF (National Science Foundation). *Science and Engineering Indicators 2000*, Arlington, VA., 2000.

NSF. *Science and Engineering Indicators 2002*, Arlington, VA., 2002.

NSSO. *Employment and Unemployment in India 1999-2000: Key Results*, NSS - 55th Round, Report No. 455(55/10/1), December, National Sample Survey Organisation, Ministry of Statistics and Programme Implementation, Government of India, Calcutta, 2000.

OECD (Organisation for Economic Co-operation and Development). *Manual on the Measurement of Human Resources Devoted to S&T (the "Canberra Manual")*, Eurostat/OECD, OCDE/GD(95)77, Paris, 1995.

OECD. *International Mobility of the Highly Skilled*, OECD, Paris, 2001.

OECD. *The Measurement of Scientific and Technological Activities. Frascati Manual 2002: Proposed Standard Practice for Surveys on Research and Experimental Development*, OECD, Paris, 2002.

UGC (University Grants Commission). *Annual Report 1999-2000*, University Grants Commission, New Delhi, 2001.

World Focus. Special Issue on Indian Diaspora - Its Positive Contribution, *World Focus* No. 255, March 2001.